



CHASSI EPON FK-C32-RAC

User's Manual

Rev.01 – Mar/14

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Caution

Circuit devices are sensitive to static electricity, which can damage their delicate electronics. Dry weather conditions or walking across a carpeted floor may cause you to acquire a static electrical charge.

To protect your device, always:

- Touch the metal chassis of your computer to ground the static electrical charge before you pick up the circuit device.
- Pick up the device by holding it on the left and right edges only.

Electronic Emission Notices

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a class A computing device pursuant to Subpart J of part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.

European Community (CE) Electromagnetic Compatibility Directive

This equipment has been tested and found to comply with the protection requirements of European Emission Standard EN55022/EN60555-2 and the Generic European Immunity Standard EN50082-1.

EMC:

EN55022(1988) /CISPR-22(1985)	class A
EN60555-2(1995)	class A
EN60555-3	
IEC1000-4-2(1995)	4k V CD, 8kV, AD
IEC1000-4-3(1995)	3V/m
IEC1000-4-4(1995)	1kV – (power line), 0.5kV – (signal line)

1 Introduction

1.1 Overview

The intelligent box is a 19-inch EPON Media Converter Chassis with cabinet height 3U (5.20 inches). It is designed to accommodate 16 slots of various type of EPON fiber media converter module at a central location for multiple segments cross connection and network management. Any combination of EPON Fiber conversion solutions can be installed in a wiring closet for cable connection. The network management supports Web UI via browser, CLI via local console, Telnet, SNMPv1, v2c and v3 interfaces. Supports IEEE 802.3ah OAM function for CO and CPE site “Remote Failure Indication”, “Remote Loopback” and “Link Monitoring”. Supports “Port Configuration” and “Bandwidth Configuration”. Models equipped with DC-48V power unit are also available for Telecom applications.

- Network Management
 - Built-in management board
 - Two 10/100 NWay Ethernet Port
 - One RS-232 port as local console
 - SNMP agent
 - MIB-2 (RFC 1213)
 - Private MIB
 - Web browser support based on HTTP server
 - Telnet remote control CLI.

1.2 Model Description

Part number	Model	Power Supply Configurations	Slots
35510099	FK-C32-RAC	Two AC 100/240V Power Module w/ Redundancy	16
35510100	FK-C32-RDC	Two DC -48V Power Module w/ Redundancy	16

Table 1-1

Note: Each slot is equipped with a dummy panel as factory default.

Various slide-in converter modules are available for use with 16-slot chassis.

Power Model	Power Supply Configurations	DC Output
RPM-300A	Redundant AC 100~240V	300W @+12V
RPM-300D	Redundant DC -48V	300W @+12V

Table 1-2

OLT Module	Description
FK-OLT-20	1-Port Gigabit Ethernet to 1-Port 1.25G EPON OLT Module, CO SC 20Km, 1490nm
FK-OLT-20/2	2-Port GbE TP/SFP Combo to 2-Port 1.25G or 2.5G SFP EPON Module

Table 1-3

1.3 Checklist

Before you start installing the EPON OLT Chassis, verify that the package contains the following:

- The 16-Slot Chassis (2 power supplies and the Management Unit)
- Mounting Accessory (for 19" Rack Shelf)
- This User's Guide CD-ROM
- RS-232 Serial Cable

Please notify Furukawa immediately if any of the aforementioned items is missing or damaged.

1.4 View of The Converter Chassis



Fig. 1-1 Front View of 19-inch Converter Chassis Rack



Fig. 1-2 Rear View of 19-inch Converter Chassis Rack

2 Installation

2.1 Management Board LED Indicator and Reset Switch

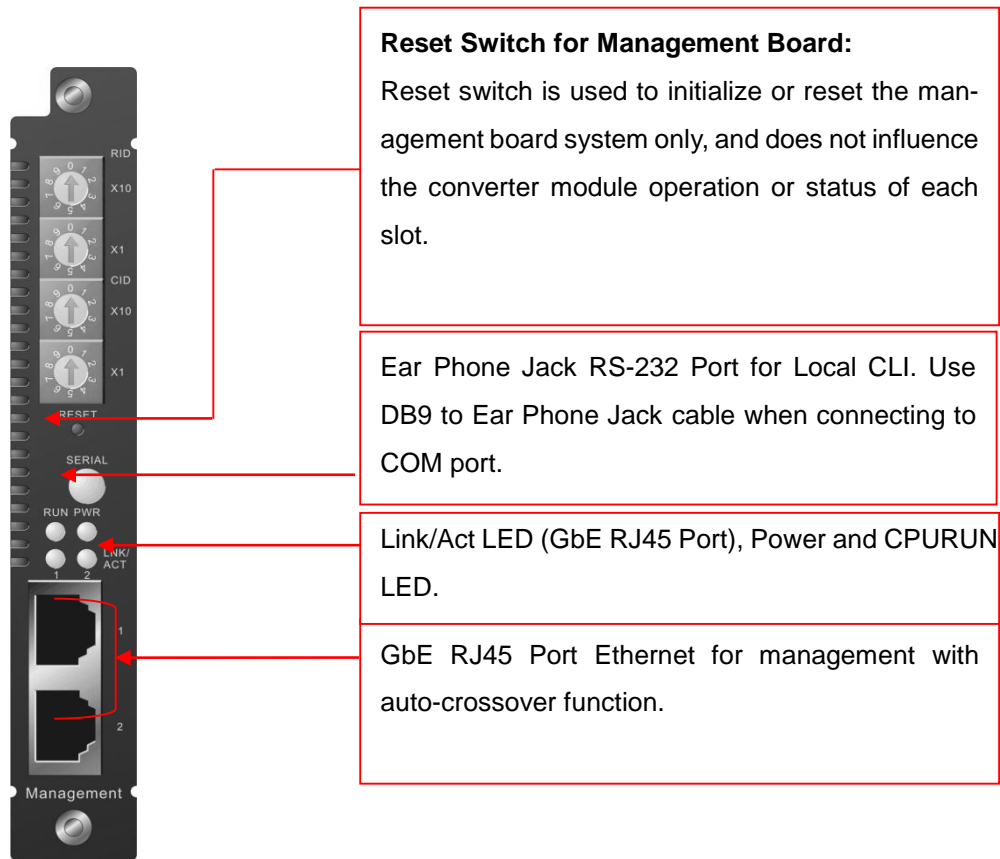


Fig. 2-1 Front View of Management Board and Connector

LED	Color	Function
Power	Green	Lit when power is good
CPU RUN	Green	Lit when CPU is active
Link/Act	Green	Lit when connection with remote device is good Blinks when any traffic is present

Table 2-1 LED Indicators from Management Board Description and Status

Note: Port 1~2 is mainly used in daisy chain for each FK-C32 chassis, the switch/hub could be saved to connect each chassis when the user would like to manage a variety of chassis mounted on the 19-inch rack in one network.

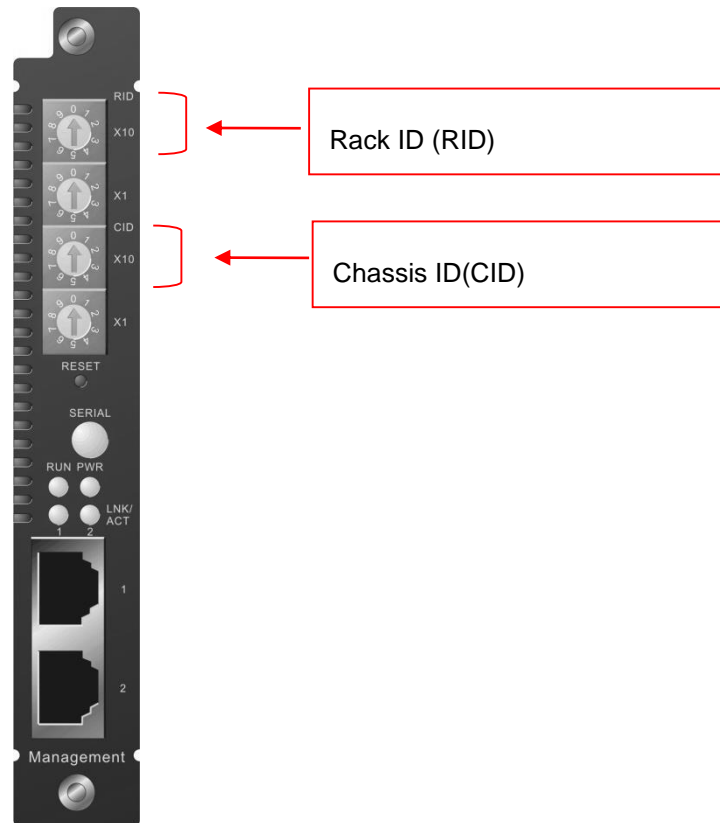
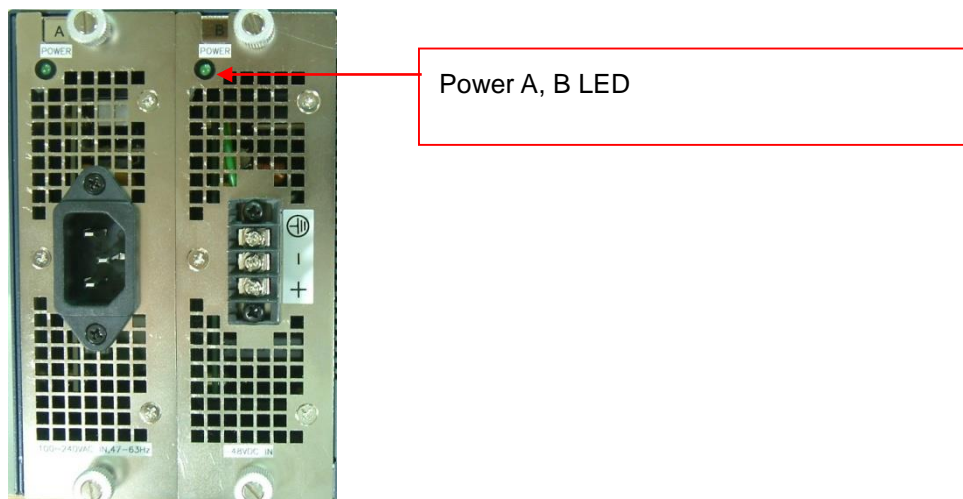


Fig. 2-2 Front View of Rack ID and Chassis ID

Note:

FK-C32 supports two sets of switch number for the chassis location definition, one is RID (Rack ID), and the other is CID (Chassis ID). The former means the place in which the chassis was mounted in the Rack ID cabinet. The later means the chassis's number in the same rack cabinet. The RID and CID should be encoded when mounting the chassis into rack cabinet according to telecomm room rack cabinet number.

2.2 Power Module LED Indicator



LED	Color	Function
A	Green	Lit when power unit A is good Blinks when power unit A failed
B	Green	Lit when power unit B is good Blinks when power unit B failed
LED A and B are steady lit when power redundancy takes effect with both A and B at power-good status. It goes to simplex power (no redundancy) when either power unit A or B failed with LED blinking. Unit A and unit B are hot-swappable.		

Table 2-2 LED Indicators from the Power module Description and Status

2.3 Floor and Site Planning

16-Slot Intelligent Converter Chassis is designed in compliance with the EIA 310-D standards, and the chassis cabinet height is 3U(5.2 inches). The power consumption of 16 modules (maximum loading) is up to 300 Watts. Sufficient air ventilation and good environment are necessary to assure proper converter chassis operation. Consider the proper spacing between the manageable chassis and adjacent facility when mounting the manageable chassis to the 19-inch rails.

2.4 Installation

2.4.1 Installing Chassis to a 19.Inch Wiring Closet Rail

Caution: Allow a proper spacing for the air intake at the bottom side, and proper air ventilation for the cooling fan at the rear side of converter chassis.

• **For redundant power model, each power unit has a separate power cord**

- ⇒ Wear a grounding device for electrostatic discharge;
- ⇒ Install four screws through mounting ears into each side;
- ⇒ Locate Converter Chassis at 19-inch mounting rails and screw up the front brackets;
- ⇒ Set power cord after power module inserted into the 16-slot chassis;
- ⇒ For AC power model:

Verify that the voltage of AC power is correct and plug in AC power cord

- ⇒ For Telecom model:

Verify that the voltage of DC power is correct and fasten DC power lugs

Power Input Terminal: -48VDC

FG(frame ground for 19-inch rack rail)

GND(0V)

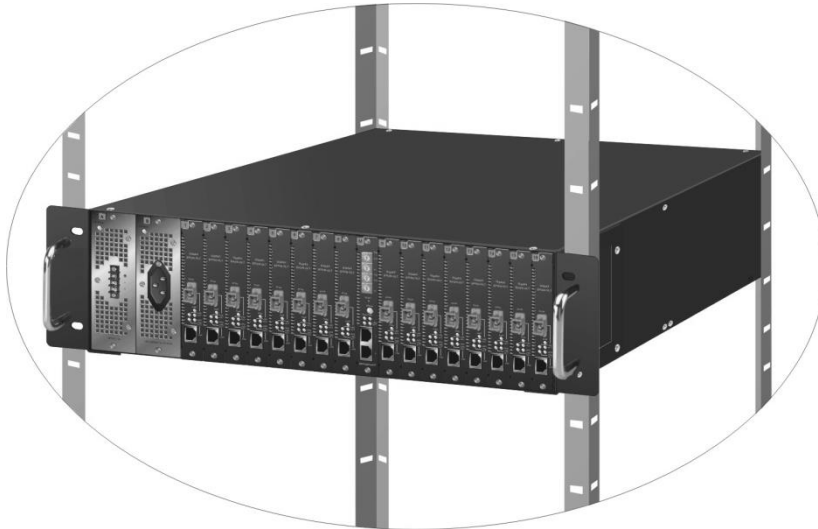


Fig. 2-4 Installing Converter Chassis in 19-

2.4.2 Installing OLT Modules to Chassis

Note: Converter slide-in modules are hot-swappable.

- ⇒ Wear a grounding device for electrostatic discharge;
- ⇒ Unscrew and remove the vacant slot dummy panel;
- ⇒ Verify the converter module is the right model and conforms to the chassis;
- ⇒ Slide the module along two guides in slot and fasten the thumb knob, and be sure that the converter module is properly seated against the slot socket/connector;
- ⇒ Install the media cable for network connection;
- ⇒ Repeat the above steps, as needed, for each module to be installed into slot(s).

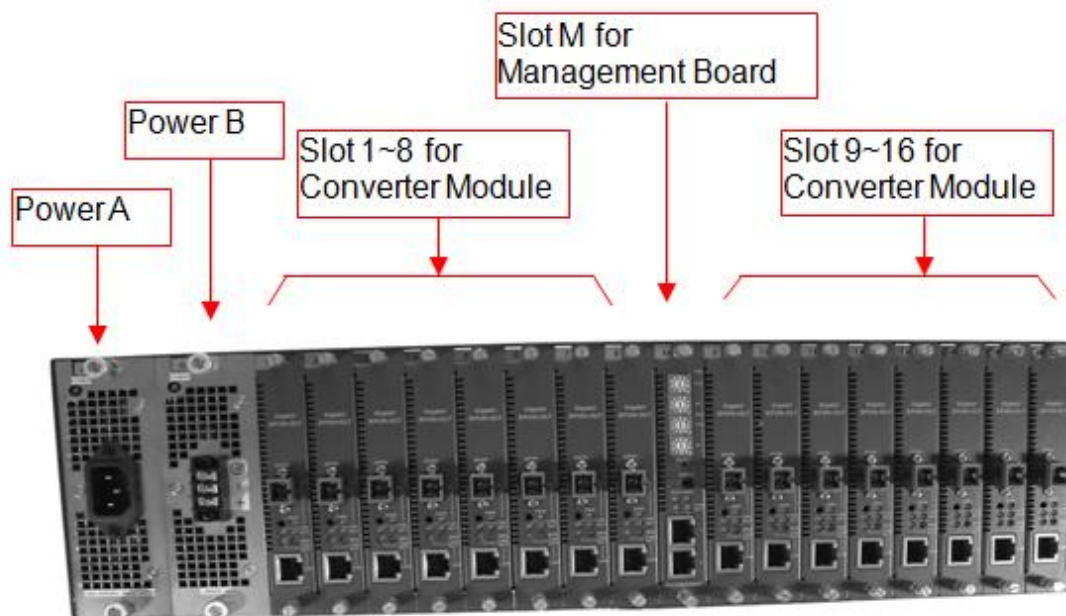


Fig. 2-5 Installing All Module into

2.4.3 Installing PC Station for Web-Based Management

The converter chassis management board provides embedded Web server, SNMP agent, TFTP client and Telnet software, etc. that can be used at a remote PC with any installed Web browser, SNMP, TFTP or Telnet application to do network management.

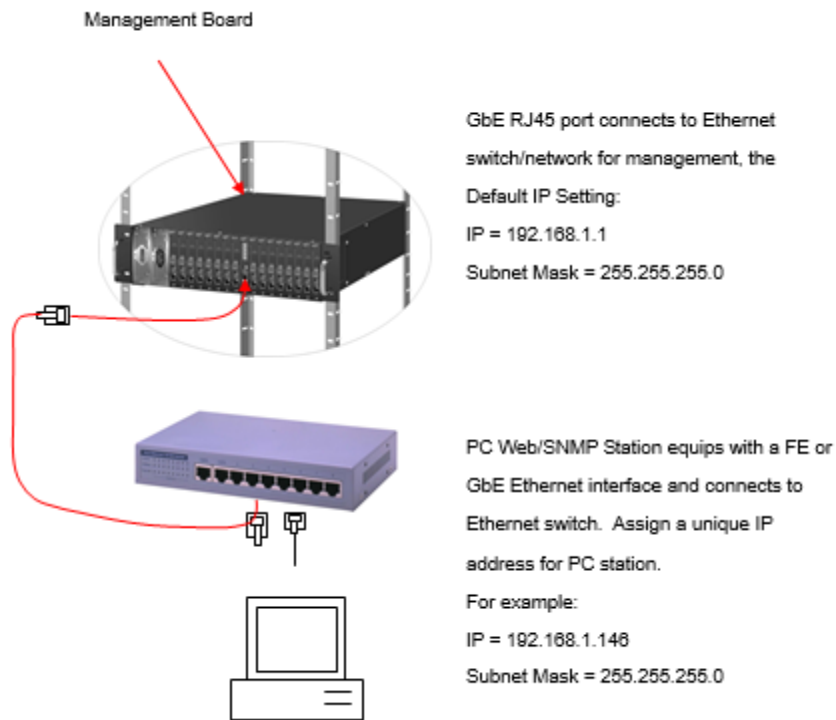


Fig. 2-6 Management by Ethernet Switch/Network and PC

Warning: Both management board and PC/station's IP must be in a subnet, please assign a proper Subnet Mask. To connect the Web/SNMP Management module to the remote Network Management Station:

1. Locate CAT. 5 UTP network cable with male RJ-45 connector. Attach male RJ-45 connector to Media Converter Rack Management Module. Attach the other end of cable to an Ethernet switch.
2. Locate the second network cable. Attach the second network cable to the Ethernet Switch.
3. Attach the other end of cable to the PC Network Management Station.
4. To assign a reasonable public or private IP address depends on each network site. Please refer to Figure 2-6 about the Converter Chassis Management board's default IP address information. Also refer to Section 3-1-4 IP Configuration" for the management board's IP address setting.
5. Default Username: admin Default Password: admin

2.4.4 Installing a Terminal Emulator for CLI Management

The serial port cable is attached directly to a DTE device through a null modem cable for CLI management. The null modem cable configuration is attached on Appendix B.

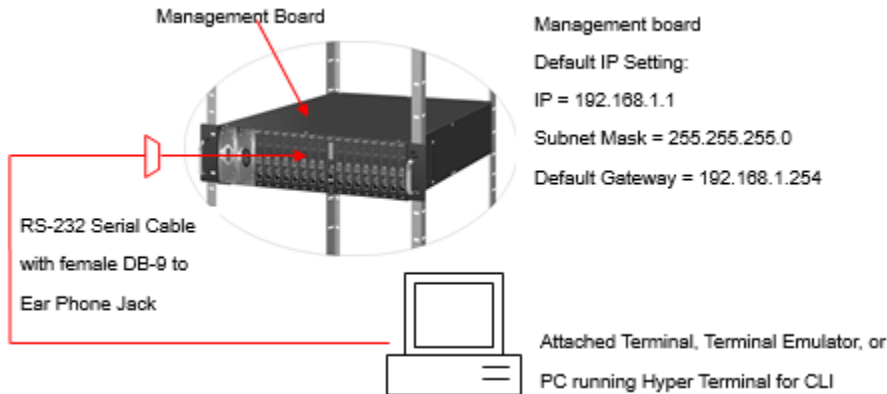


Fig. 2-7 Local Console Management by PC Hyper Terminal and Com Port

To connect the Management board to the CLI interface:

1. Locate the correct DB-9 serial port null modem cable with female DB-9 connector. Refer to the Appendix B for null modem cable configuration. Null modem cable comes with the management chassis.
2. Attach the DB-9 serial port female cable connector to the male DB-9 serial port connector on the Converter Chassis Management board.
3. Attach the other end of the DB-9 serial port cable to an ASCII terminal emulator.

Note: The Management board uses the following serial port parameter values:

Baud rate	115200
Stop bits	1
Data bits	8
Parity	N
Flow control	none

4. When the terminal emulator connected the management board, then press **<Enter>** key, the Login prompt will be shown on the screen. The default username and password are shown as below:

Username = admin Password = empty

5. Refer to Chapter 4 "CLI Management" for more details.

2.5 Maintenance and Replacement

2.5.1 Power Unit Replacement

Note: For redundant power model, the power unit LED will blink when power unit failed.

- ⇒ Wear a grounding device for electrostatic discharge;
- ⇒ Remove power cord from power connector (AC socket / DC terminal block);
- ⇒ Unscrew the power unit;
- ⇒ Remove the defective power unit;
- ⇒ Slide-in the replacement power unit along the guide rails;
- ⇒ Install and fasten the power unit;
- ⇒ Install power cord onto power connector.



Fig. 2-8 Power Unit Replacement

2.5.2 Converter Module Replacement

Note: Converter slide-in modules are hot-swappable

- ⇒ Wear a grounding device for electrostatic discharge
- ⇒ Unscrew the thumb knob of the converter module
- ⇒ Remove the defective converter module
- ⇒ Slide the replacement converter module along two guides in slot
- ⇒ Fasten the thumb knob, and be sure that the converter module is properly seated against the slot socket/connector.

With thumb knobs, it will be easy to swap the module.

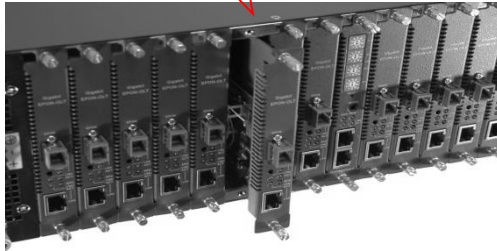


Fig. 2-9 Converter Module Replacement

2.5.3 Management Board Module Replacement

Note: Management Board module is hot-swappable; only management functions were stopped at that time. All modules fiber conversion and forwarding function could be still run well.

- ⇒ Wear a grounding device for electrostatic discharge;
- ⇒ After powering off the converter chassis, unscrew the thumb knob of the management board module;
- ⇒ Remove the defective management board module;
- ⇒ Slide the replacement management board module along two guides in slot;
- ⇒ Fasten the thumb knob, and be sure that the management board module is properly seated against the slot socket/connector;
- ⇒ After powering on the converter chassis, initialize the Management Board by pressing "Reset" button and go to the management menu.

Note:

1) Entire configuration of the FK-C32 chassis could be saved into a file via the function "Import/ Export Configuration". For more details, please refer to Sections 3-3-14-5 and 3-3-14-6.

2) Except IP address, all configurations about the new management board module will be recovered after above procedures.

With thumb knobs, it will be
easy to swap the module.

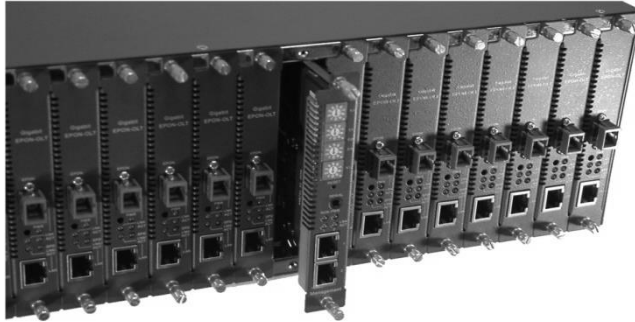


Fig. 2-10 Management Board Module Replacement

2.5.4 High Speed Fan

Attention: High Speed Fan Exchange! Please watch your own safety during swapping if the fan is still running.

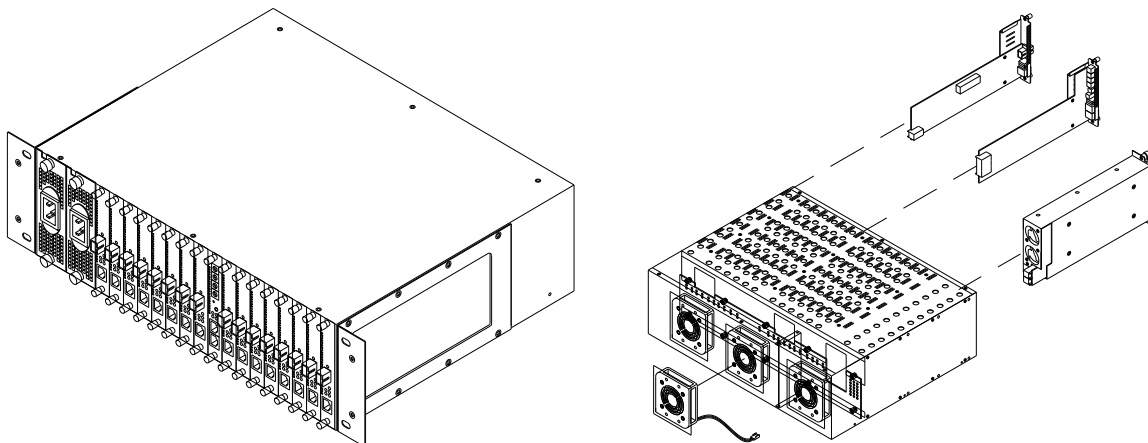


Fig. 2-11 Fun Replacement

3 Web-based Management

3.1 System

After you login, the EPON chassis shows you the system information. This page is default and tells you the basic information of the system, including “Model Name”, “System Description”, “Contact”, “Location”, “System Up Time”, “Firmware Version”, “Host Mac Address”, “Device Port”. With this information, you will know the software version used, MAC address, serial number, how many ports good and so on. This is helpful while malfunctioning.

3.1.1 System Information

3.1.1.1 Information

The EPON chassis system information is provided here.

Web interface

To check the System Information in the web interface:

1. Click System, System Information and Information.
2. Check the contact information for the system administrator as well as the name and location of the EPON chassis.
3. To update the information click on “Refresh”.

System Information	
Model Name	FK-C32
System Description	Furukawa Managed GEPON OLT
Location	
Contact	
RID-CID	27-1
Device Name	FK-C32
System Date	2011-01-02 00:17:40
System Uptime	0d 00:00:43
BIOS Version	v1.00
Firmware Version	v1.32
CPU HW-Mechanical Version	v1.01-v1.01
CPU Code Number	011B0F000001
Chassis HW-Mechanical Version	v1.01 - v1.01
Host IP Address	10.150.3.250
Subnet Mask	255.255.255.0
Gateway IP Address	10.150.3.254
Host MAC Address	00-40-c7-1c-73-e2
Console Baudrate	115200
RAM Size	128MB
Flash Size	16MB
Bridge FDB Size	8192 MAC Addresses
Transmit Queue	8 queues per port
Maximum Frame Size	9600
System Temperature	31 degree Centigrade ,91.4F degree Fahrenheit
Fan	fan1:3131 fan2:3067 fan3:3006
Voltage	12.0 V
Power	power A:AC-fail power B:AC-good
CPU Average Load	0%

Parameter description:

- **Model Name:** Model Name will show **FK-C32**
- **System Description:** System Description will show **Furukawa Managed GEPON OLT**.
- **Location:** The system location configured in Configuration | System | Information | System Location.
- **Contact:** The system contact configured in Configuration | System | Information | System Contact.
- **Device Name:** The device name configured in Configuration | System | Information | Device Name.
- **System Date:** The current (GMT) system time and date. The system time is obtained through the Timing server running on the EPON chassis, if any.
- **System Uptime :**The period of time the device has been operational.

- **BIOS Version:** The boot code version of this EPON chassis.
- **Firmware Version:** The software version of this EPON chassis.
- **Hardware-Mechanical Version:** The hardware and mechanical version of this EPON chassis.
- **Series Number :** The serial number of this EPON chassis.
- **Host IP Address:** The management IP Address of this EPON chassis.
- **Subnet Mask:** The management IP subnet mask of this EPON chassis.
- **Gateway IP Address:** The management IP gateway IP Address of this EPON chassis.
- **Host MAC Address:** The MAC Address of this EPON chassis.
- **Console Baudrate:** The console baud-rate of this EPON chassis.
- **RAM Size:** Displays the RAM size of the system.
- **Flash Size:** Displays the flash size of the system.
- **Bridge FDB Size:** Displays the bridge forwarding database size of the device.
- **Transmit Queue:** Displays the information about EPON chassis transmit priority queue.
- **Maximum Frame Size:** Displays the information about EPON chassis supported maximum frame size.
- **System Temperature:** Detect and show temperature by Celsius-temperature and F-Temperature both.
- **Fan:** Detect and show all fan speed.
- **Voltage:** Detect and show power Voltage.
- **Power:** Detect and show power.
- **Buttons**
 - Auto-refresh:** Check this box to refresh the page automatically. Automatic refresh occurs every 3 seconds.
 - Refresh:** Click to refresh the page.

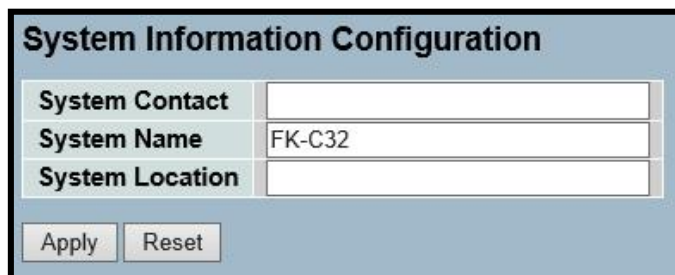
3.1.1.2 Configuration

The EPON chassis system information is provided here.

Web interface

To configure System Information in the web interface:

1. Click System, System Information and Configuration.
2. Inform the System Contact Name.
3. Inform the System Name.
4. Inform the System Location.
5. Click on Apply.



System Information Configuration	
System Contact	<input type="text"/>
System Name	FK-C32
System Location	<input type="text"/>
<input type="button" value="Apply"/> <input type="button" value="Reset"/>	

Parameter description:

- **System Contact:** The textual identification of the contact person for this managed node, together with information on how to contact this person. The allowed string length is 0 to 255, and the allowed content is the ASCII characters from 32 to 126.
- **System Name :** An administratively assigned name for this managed node. By convention, this is the node's fully-qualified domain name. A domain name is a text string drawn from the alphabet (A-Z a-z), digits (0-9), minus sign (-). No space characters are permitted as part of a name. The first or last character must not be a minus sign. The allowed string length is 0 to 255.
- **System Location:** The physical location of this node(e.g., telephone closet, 3rd floor). The allowed string length is 0 to 255, and the allowed content is the ASCII characters from 32 to 126.
- **Buttons**
 - Apply:** Click to apply changes.
 - Reset:** Click to undo any changes made locally and revert to previously saved values.

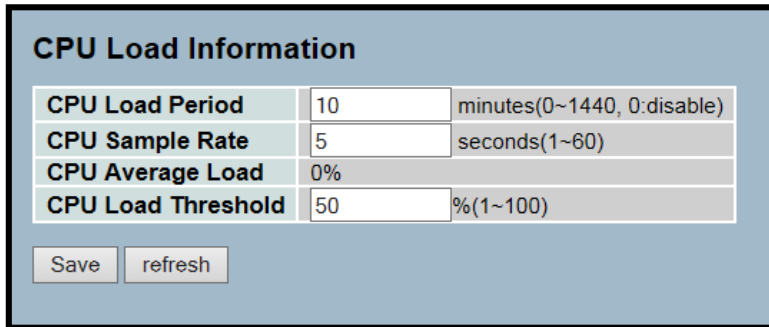
3.1.1.3 CPU Load

The CPU load information is displayed here:

Web interface

To check the CPU Load in the web interface:

1. Click System, System Information and CPU Load.



CPU Load Period	10	minutes(0~1440, 0:disable)
CPU Sample Rate	5	seconds(1~60)
CPU Average Load	0%	
CPU Load Threshold	50	%(1~100)

Parameter description:

- **CPU Load Period:** It's the period during which the management interface is going to monitor the CPU load and collect samples before updating the measurement.
- **CPU Sample Rate :** It's the period between acquisition of samples.
- **CPU Average Load:** It's the average value obtained from the samples collected during the CPU load period.
- **CPU Load Threshold:** It's the limit value for the CPU load. Above is value the management interface is going to send a trap to notify the system administrator.
- **Buttons**
 - Save:** Click to apply the changes.
 - Refresh:** Click to update the info.

3.1.2 Time

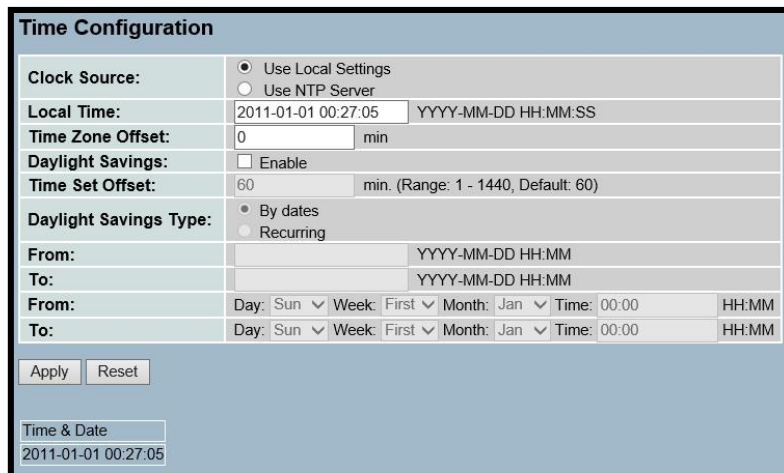
3.1.2.1 Manual

Configure Time on this page.

Web interface

To configure Time in the web interface:

1. Click System, Time and Manual.
2. Inform the local time in the format indicated on the page.
3. Inform if there's a time zone offset.
4. Inform if the daylight Saving is enable, if yes inform the time offset, the type of daylight saving and the period when it will start and finish.
5. Click on Apply.



Parameter description:

- **Clock Source:** There are two modes for configuring how the Clock Source from.
 1. Use Local Settings: In this mode Clock Source from Local Time.
 2. Use NTP Server: In this mode Clock Source from NTP Server.
- **Local Time:** Show the current time of the system.
- **Time Zone Offset:** Provide the timezone offset relative to UTC/GMT. The offset is given in minutes east of GMT. The valid range is from -720 to 720 minutes.
- **Daylight Savings:** Indicates the Daylight Savings mode operation. Possible modes are:
Enabled: Enable Daylight Savings mode operation.
Disabled: Disable Daylight Savings mode operation.
- **Time Set Offset:** Used for non-USA and European countries to set the amount of time for Daylight Saving Time(DST) (in minutes). The valid range is from 1 to 1440 minutes. The default time is 60 minutes.
- **Daylight Savings Type:** There are two types for configuring
 1. By dates: Daylight Savings Type by Dates.
 2. Recurring: Daylight Savings Type by Recurring. DST occurs on the same date every year.
- **From:** Get/Set the Start time of Daylight Savings.
- **To:** Get/Set the End time of Daylight Savings.
- **Buttons**
 - Apply:** Click to apply changes.
 - Reset:** Click to undo any changes made locally and revert to previously saved values.

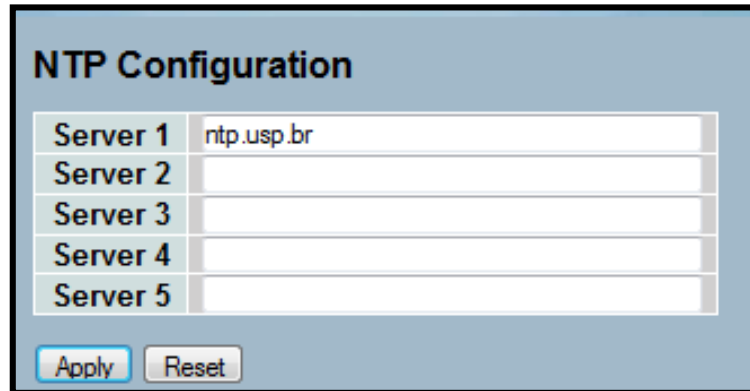
3.1.2.2 NTP

Configure NTP on this page.

Web interface

To configure Time in the web interface:

1. Click System, Time and NTP.
2. Inform the NTP server address
3. Click on Apply.



NTP Configuration	
Server 1	ntp.usp.br
Server 2	
Server 3	
Server 4	
Server 5	

Parameter description:

- **Server #:** Provide the NTP IPv4 or IPv6 address of this switch. IPv6 address is in 128-bit records represented as eight fields of up to four hexadecimal digits with a colon separating each field (:). For example, 'fe80::215:c5ff:fe03:4dc7'. The symbol '::' is a special syntax that can be used as a short-hand way of representing multiple 16-bit groups of contiguous zeros; but it can only appear once. It can also represent a legally valid IPv4 address. For example, '::192.1.2.34'.
- **Buttons**
Apply: Click to apply changes.
Reset: Click to undo any changes made locally and revert to previously saved values.

3.1.3 Account

3.1.3.1 Users

This page provides an overview of the current users. Currently the only way to login as another user on the web server is to close and reopen the browser.

Web interface

To configure Account in the web interface:

1. Click System, Account and Users.



User Name	Privilege Level
admin	15

Add new user

Parameter description:

- **User Name:** The name identifying the user. This is also a link to Add/Edit User.
- **Privilege Level:** The privilege level of the user. The allowed range is 1 to 15. If the privilege level value is 15, it can access all groups, i.e. that is granted the fully control of the device. But others value need to refer to each group privilege level. User's privilege should be same or greater than the group privilege level to have the access of that group. By default setting, most groups privilege level 5 has the read-only access and privilege level 10 has the read-write access. And the system maintenance (software upload, factory defaults and etc.) need user privilege level 15. Generally, the privilege level 15 can be used for an administrator account, privilege level 10 for a standard user account and privilege level 5 for a guest account.
- **Buttons**
Add new user: Click to add a new user.

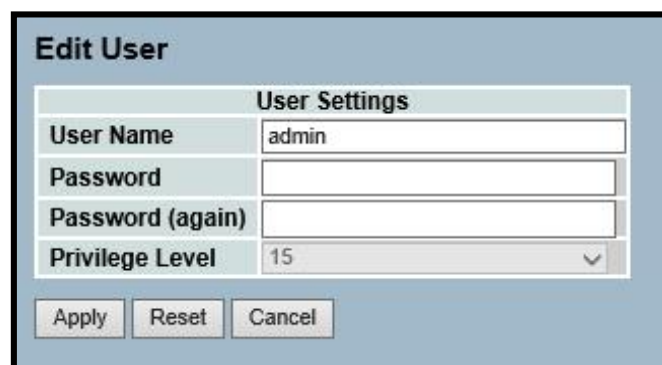
3.1.3.2 Edit User

This page configures a user.

Web interface

To configure Account in the web interface:

- Click System, Account, Users and User name.



User Settings	
User Name	admin
Password	
Password (again)	
Privilege Level	15

Apply Reset Cancel

Parameter description:

- **User Name:** A string identifying the user name that this entry should belong to. The allowed string length is 1 to 32. The valid user name is a combination of letters, numbers and underscores.
- **Password:** The password of the user. The allowed string length is 0 to 32.
- **Privilege Level:** The privilege level of the user. The allowed range is 1 to 15. If the privilege level value is 15, it can access all groups, i.e. that is granted the fully control of the device. But others value need to refer to each group privilege level. User's privilege should be same or greater than the group

privilege level to have the access of that group. By default setting, most groups privilege level 5 has the read-only access and privilege level 10 has the read-write access. And the system maintenance (software upload, factory defaults and etc.) need user privilege level 15. Generally, the privilege level 15 can be used for an administrator account, privilege level 10 for a standard user account and privilege level 5 for a guest account.

- **Buttons**

Apply: Click to apply changes.

Reset: Click to undo any changes made locally and revert to previously saved values.

Cancel: Click to undo any changes made locally and return to the Users.

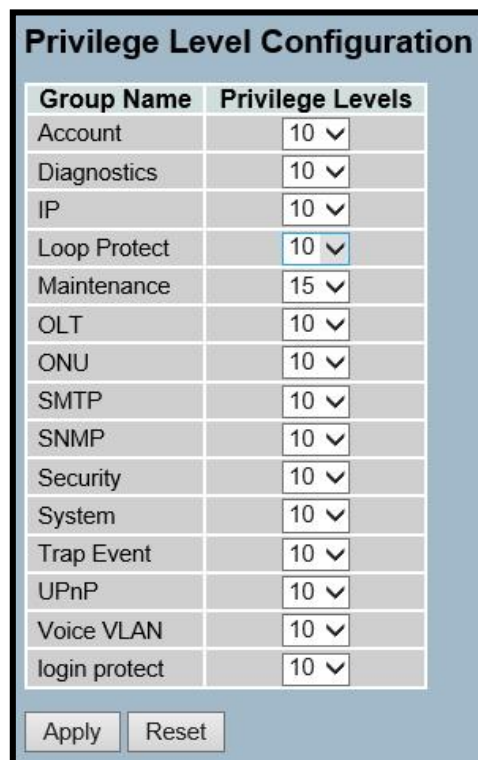
3.1.3.3 Privilege Level

This page provides an overview of the privilege levels.

Web interface

To configure Account in the web interface:

1. Click System, Account, Users and Privilege Level.



Group Name	Privilege Levels
Account	10 ▼
Diagnostics	10 ▼
IP	10 ▼
Loop Protect	10 ▼
Maintenance	15 ▼
OLT	10 ▼
ONU	10 ▼
SMTP	10 ▼
SNMP	10 ▼
Security	10 ▼
System	10 ▼
Trap Event	10 ▼
UPnP	10 ▼
Voice VLAN	10 ▼
login protect	10 ▼

Apply Reset

Parameter description:

- **Group Name:** The name identifying the privilege group. In most cases, a privilege level group consists of a single module (e.g. LACP, RSTP or QoS), but a few of them contains more than one. The following description defines these privilege level groups in details:
System: System Information, Time, Syslog.
Security: IP Source Guard, ARP Inspection, DHCP snooping, DHCP Relay, NAS, Authentication (AAA), Port Security, System Access Management, ACL, HTTPS, SSH and Auth Method.
Account: Users, Privilege Level..
Diagnostics: Ping, Ping6 and VeriPHY.
Maintenance: System Reboot, System Restore Default, Configuration Save, Export/Import Configuration and Firmware upgrade.
- **Privilege Levels:** Every group has an authorization Privilege level. User Privilege should be same or greater than the authorization Privilege level to have the access to that group.
- **Buttons**
Apply: Click to apply changes.
Reset: Click to undo any changes made locally and revert to previously saved values.

3.1.4 IP

3.1.4.1 IPv4

The **Configured** column is used to view or change the IP configuration.
The **Current** column is used to show the active IP configuration.

Web interface

To configure IP in the web interface:

1. Click System, IP and IPv4.
2. Inform the addresses according to your network.
3. Click on Apply.

IP Configuration

	Configured	Current
DHCP Client	<input type="checkbox"/>	Renew
IP Address	10.150.3.250	10.150.3.250
IP Mask	255.255.255.0	255.255.255.0
IP Gateway	10.150.3.254	10.150.3.254
DNS Server	0.0.0.0	0.0.0.0

IP DNS Proxy Configuration

DNS Proxy ☐

Parameter description:

- **DHCP Client:** Enable the DHCP client by checking this box. If DHCP fails and the configured IP address is zero, DHCP will retry. If DHCP fails and the configured IP address is non-zero, DHCP will stop and the configured IP settings will be used. The DHCP client will announce the configured System Name as hostname to provide DNS lookup.
- **IP Address:** Provide the IP address of this switch in dotted decimal notation.
- **IP Mask:** Provide the IP mask of this switch dotted decimal notation.
- **IP Gateway:** Provide the IP address of the gateway in dotted decimal notation.
- **DNS Server:** Provide the IP address of the DNS Server in dotted decimal notation.
- **DNS Proxy:** When DNS proxy is enabled, DUT will relay DNS requests to the current configured DNS server on DUT, and reply as a DNS resolver to the client device on the network.
- **Buttons**
 - Apply:** Click to apply changes.
 - Reset:** Click to undo any changes made locally and revert to previously saved values.
 - Renew:** Click to renew DHCP. This button is only available if DHCP is enabled.

3.1.4.2 IPv6

The **Configured** column is used to view or change the IPv6 configuration.
The **Current** column is used to show the active IPv6 configuration.

Web interface

To configure IP in the web interface:

1. Click System, IP and IPv6.

IPv6 Configuration

	Configured	Current
Auto Configuration	<input type="checkbox"/>	Renew
Address	<input type="text" value="::c0a8:0101"/>	<div>::c0a8:0101</div> <div>Link-Local Address: fe8002::ba26:d4ff:fe00:0001</div>
Prefix	<input type="text" value="96"/>	96
Gateway	<input type="text" value="::"/>	::

[Apply](#)
[Reset](#)

Parameter description:

- **Auto Configuration:** Enable IPv6 auto-configuration by checking this box. If fails, the configured IPv6 address is zero. The router may delay responding to a router solicitation for a few seconds, the total time needed to complete auto-configuration can be significantly longer.
- **Address:** Provide the IPv6 address of this switch. IPv6 address is in 128-bit records represented as eight fields of up to four hexadecimal digits with a colon separating each field (:). For example, 'fe80::215:c5ff:fe03:4dc7'. The symbol '::' is a special syntax that can be used as a shorthand way of representing multiple 16-bit groups of contiguous zeros; but it can only appear once. It can also represent a legally valid IPv4 address. For example, '::192.1.2.34'.
- **Prefix:** Provide the IPv6 Prefix of this switch. The allowed range is 1 to 128.
- **Gateway:** Provide the IPv6 gateway address of this switch. IPv6 address is in 128-bit records represented as eight fields of up to four hexadecimal digits with a colon separating each field (:). For example, 'fe80::215:c5ff:fe03:4dc7'. The symbol '::' is a special syntax that can be used as a shorthand way of representing multiple 16-bit groups of contiguous zeros; but it can only appear once. It can also represent a legally valid IPv4 address. . For example, '::192.1.2.34'.

- **Buttons**

Apply: Click to apply changes.

Reset: Click to undo any changes made locally and revert to previously saved values.

Renew: Click to renew IPv6 AUTOCONF. This button is only available if IPv6 AUTOCONF is enabled.

3.1.5 Syslog

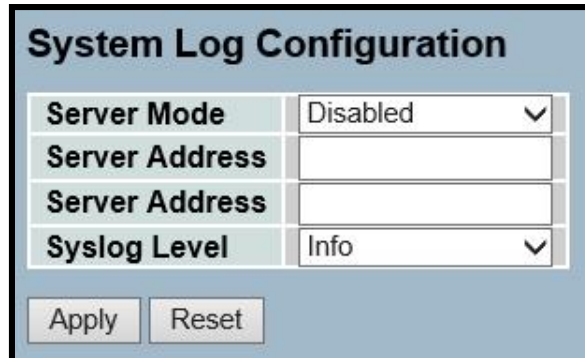
3.1.5.1 Configuration

Configure System Log on this page.

Web interface

To configure Syslog in the web interface:

1. Click System, Syslog and Configuration.
2. Inform the Server IP Address.
3. Inform the syslog level from which the logs will be sent.



System Log Configuration	
Server Mode	Disabled ▼
Server Address	<input type="text"/>
Server Address	<input type="text"/>
Syslog Level	Info ▼
<input type="button" value="Apply"/> <input type="button" value="Reset"/>	

Parameter description:

- **Server Mode** : Indicates the server mode operation. When the mode operation is enabled, the syslog message will send out to syslog server. The syslog protocol is based on UDP communication and received on UDP port 514 and the syslog server will not send acknowledgments back sender since UDP is a connectionless protocol and it does not provide acknowledgments. The syslog packet will always send out even if the syslog server does not exist. Possible modes are:
Enabled: Enable server mode operation.
Disabled: Disable server mode operation.
- **Server Address**: Indicates the IPv4 host address of syslog server. If the switch provide DNS feature, it also can be a host name.
- **Syslog Level**: Indicates what kind of message will send to syslog server. Possible modes are:
<0> Emergency: System is unusable.
<1> Alert: Action must be taken immediately.
<2> Critical: Critical conditions.
<3> Error: Error conditions.
<4> Warning: Warning conditions.
<5> Notice: Normal but significant conditions.
<6> Information: Information messages.
<7> Debug: Debug-level messages.
- **Buttons**
Apply: Click to apply changes.
Reset: Click to undo any changes made locally and revert to previously saved values.

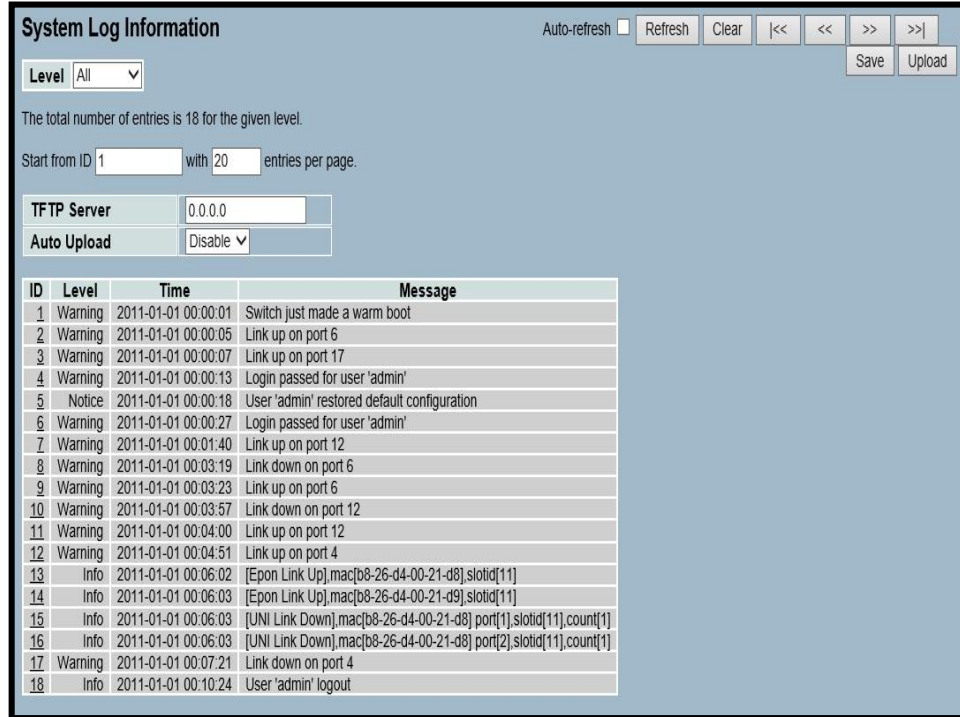
3.1.5.2 Log

The switch system log information is provided here.

Web interface

To configure Syslog in the web interface:

1. Click System, Syslog and Log.



System Log Information Auto-refresh ☐ Refresh Clear |<< << >> >>| Save Upload

Level: All ▼

The total number of entries is 18 for the given level.

Start from ID 1 with 20 entries per page.

TFTP Server: 0.0.0.0

Auto Upload: Disable ▼

ID	Level	Time	Message
1	Warning	2011-01-01 00:00:01	Switch just made a warm boot
2	Warning	2011-01-01 00:00:05	Link up on port 6
3	Warning	2011-01-01 00:00:07	Link up on port 17
4	Warning	2011-01-01 00:00:13	Login passed for user 'admin'
5	Notice	2011-01-01 00:00:18	User 'admin' restored default configuration
6	Warning	2011-01-01 00:00:27	Login passed for user 'admin'
7	Warning	2011-01-01 00:01:40	Link up on port 12
8	Warning	2011-01-01 00:03:19	Link down on port 6
9	Warning	2011-01-01 00:03:23	Link up on port 6
10	Warning	2011-01-01 00:03:57	Link down on port 12
11	Warning	2011-01-01 00:04:00	Link up on port 12
12	Warning	2011-01-01 00:04:51	Link up on port 4
13	Info	2011-01-01 00:06:02	[Epon Link Up],mac[b8-26-d4-00-21-d8],slotid[11]
14	Info	2011-01-01 00:06:03	[Epon Link Up],mac[b8-26-d4-00-21-d9],slotid[11]
15	Info	2011-01-01 00:06:03	[UNI Link Down],mac[b8-26-d4-00-21-d8] port[1],slotid[11],count[1]
16	Info	2011-01-01 00:06:03	[UNI Link Down],mac[b8-26-d4-00-21-d8] port[2],slotid[11],count[1]
17	Warning	2011-01-01 00:07:21	Link down on port 4
18	Info	2011-01-01 00:10:24	User 'admin' logout

Parameter description:

- **TFTP Sever:** TFTP server IP address for log data upload
- **Auto Upload:** enable/disable the auto upload function.
- **ID:** The ID (≥ 1) of the system log entry.
- **Level:** The level of the system log entry. The following level types are supported:
 - <0> **Emergency:** System is unusable.
 - <1> **Alert:** Action must be taken immediately.
 - <2> **Critical:** Critical conditions.
 - <3> **Error:** Error conditions.
 - <4> **Warning:** Warning conditions.
 - <5> **Notice:** Normal but significant conditions.
 - <6> **Information:** Information messages.
 - <7> **Debug:** Debug-level messages.

- **Time:** The time of the system log entry.
- **Message:** The message of the system log entry.
- **Buttons**

Auto-refresh: Check this box to refresh the page automatically. Automatic refresh occurs every 3 seconds.

Refresh: Click to refresh the page.

Clear: Flushes all system log entries.

|<<: Updates the system log entries, starting from the first available entry ID.

<<: Updates the system log entries, ending at the last entry currently displayed.

>>: Updates the system log entries, starting from the last entry currently displayed.

>>|: Updates the system log entries, ending at the last available entry ID.

3.1.5.3 Detailed Log

The switch system detailed log information is provided here.

Web interface

To configure Syslog in the web interface:

1. Click System, Syslog and Detailed Log.



Detailed System Log Information	
ID	1
Message	
Level	Warning
Time	2011-01-01 00:00:01
Message	Switch just made a warm boot

Parameter description:

- **ID:** The ID (≥ 1) of the system log entry.
- **Message:** The detailed message of the system log entry.
- **Buttons**
 - Refresh:** Click to refresh the page.
 - <<:** Updates the system log entries, starting from the first available entry ID.
 - <:** Updates the system log entries, ending at the last entry currently displayed.
 - >:** Updates the system log entries, starting from the last entry currently displayed.
 - >>:** Updates the system log entries, ending at the last available entry ID.

3.1.6 SNMP

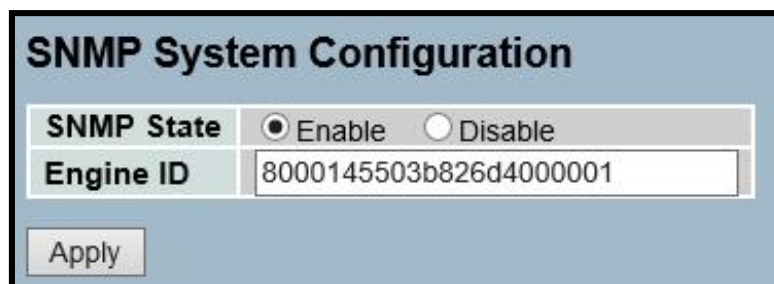
3.1.6.1 System

Configure SNMP on this page.

Web interface

To configure SNMP in the web interface:

1. Click System, SNMP and System.



SNMP System Configuration	
SNMP State	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Engine ID	8000145503b826d4000001
Apply	

Parameter description:

- **State:** Indicates the SNMP state operation. Possible state are:
 - Enable:** Enable SNMP mode operation.
 - Disable:** Disable SNMP mode operation.
- **Engine ID:** Indicates the SNMPv3 engine ID. The string must contain an even number(in hexadecimal format) with number of digits between 10 and 64, but all-zeros and all-F's are not allowed. Change of the Engine ID will clear all original local users.
- **Buttons**
 - Apply:** Click to apply changes.

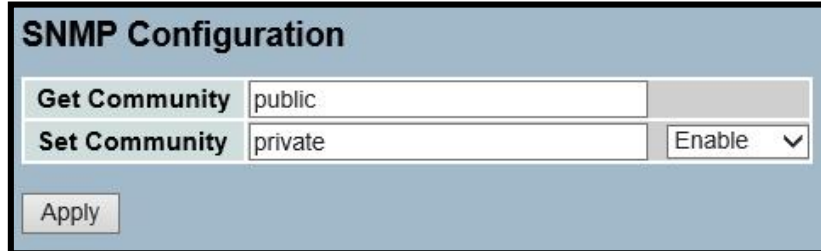
3.1.6.2 Configuration

Configure SNMP on this page.

Web interface

To configure SNMP in the web interface:

1. Click System, SNMP and Configuration.



The screenshot shows the 'SNMP Configuration' web interface. It has a title bar 'SNMP Configuration'. Below it, there are two input fields: 'Get Community' with the value 'public' and 'Set Community' with the value 'private'. To the right of the 'Set Community' field is a dropdown menu currently showing 'Enable'. At the bottom left of the form is an 'Apply' button.

Parameter description:

- **Get Community:** Indicates the community read access string to permit access to SNMP agent. The allowed string length is 0 to 255, and the allowed content is the ASCII characters from 33 to 126. The field is applicable only when SNMP version is SNMPv1 or SNMPv2c. If SNMP version is SNMPv3, the community string will be associated with SNMPv3 communities table. It provides more flexibility to configure security name than a SNMPv1 or SNMPv2c community string. In addition to community string, a particular range of source addresses can be used to restrict source subnet.
- **Set Community:** Indicates the community write access string to permit access to SNMP agent. The allowed string length is 0 to 255, and the allowed content is the ASCII characters from 33 to 126. The field is applicable only when SNMP version is SNMPv1 or SNMPv2c. If SNMP version is SNMPv3, the community string will be associated with SNMPv3 communities table. It provides more flexibility to configure security name than a SNMPv1 or SNMPv2c community string. In addition to community string, a particular range of source addresses can be used to restrict source subnet.
- **Mode:** Indicates the Set Community mode operation. Possible modes are:
Enabled: Enable Set Community.
Disabled: Disable Set Community.
- **Buttons**
Apply: Click to apply changes.

3.1.6.3 Communities

Configure SNMPv3 community table on this page. The entry index key is **Community**.

Web interface

To configure SNMP in the web interface:

1. Click System, SNMP and Communities.



The screenshot shows the 'SNMPv1/v2 Communities to Security Configuration' web interface. It has a title bar 'SNMPv1/v2 Communities to Security Configuration'. Below it is a table with the following columns: 'Delete', 'Community', 'User Name', 'Source IP', and 'Source Mask'. There is one row of data: 'Delete' (checkbox), 'Community' (furukawa), 'User Name' (user), 'Source IP' (10.150.4.252), and 'Source Mask' (255.255.255.0). At the bottom left is an 'Add new community' button, and at the bottom right is an 'Apply' button.

Parameter description:

- **Delete:** Check to delete the entry. It will be deleted during the next apply.
- **Community:** Indicates the community access string to permit access to SNMPv3 agent. The allowed string length is 1 to 32, and the allowed content is ASCII characters from 33 to 126. The community string will be treated as security name and map a SNMPv1 or SNMPv2c community string.
- **User Name:** A string identifying the user name that this entry should belong to. The allowed string length is 1 to 32, and the allowed content is ASCII characters from 33 to 126.

- **Source IP:** Indicates the SNMP access source address. A particular range of source addresses can be used to restrict source subnet when combined with source mask.
- **Source Mask:** Indicates the SNMP access source address mask.
- **Buttons**
Apply: Click to apply changes.
Add new community: Click to add a new community entry.

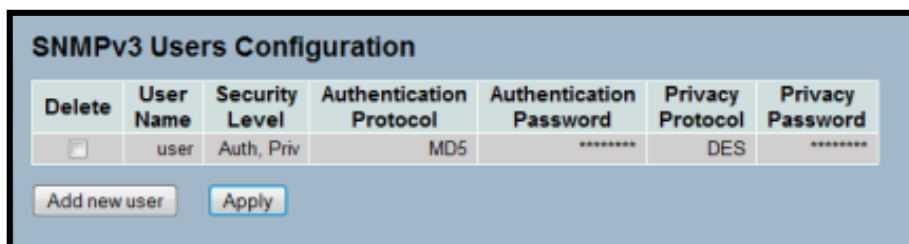
3.1.6.4 Users

Configure SNMPv3 user table on this page. The entry index keys is **User Name**.

Web interface

To configure SNMP in the web interface:

1. Click System, SNMP and Users.



The screenshot shows the 'SNMPv3 Users Configuration' web interface. It features a table with the following columns: Delete, User Name, Security Level, Authentication Protocol, Authentication Password, Privacy Protocol, and Privacy Password. A single entry is shown with 'user' as the User Name, 'Auth, Priv' as the Security Level, 'MD5' as the Authentication Protocol, and 'DES' as the Privacy Protocol. The Authentication and Privacy passwords are masked with asterisks. Below the table are two buttons: 'Add new user' and 'Apply'.

Delete	User Name	Security Level	Authentication Protocol	Authentication Password	Privacy Protocol	Privacy Password
<input type="checkbox"/>	user	Auth, Priv	MD5	*****	DES	*****

Buttons: Add new user, Apply

Parameter description:

- **Delete:** Check to delete the entry. It will be deleted during the next apply.
- **User Name :** A string identifying the user name that this entry should belong to. The allowed string length is 1 to 32, and the allowed content is ASCII characters from 33 to 126.
- **Security Level :** Indicates the security model that this entry should belong to. Possible security models are:
NoAuth, NoPriv: No authentication and no privacy.
Auth, NoPriv: Authentication and no privacy.
Auth, Priv: Authentication and privacy.
The value of security level cannot be modified if entry already exists. That means it must first be ensured that the value is set correctly.
- **Authentication Protocol:** Indicates the authentication protocol that this entry should belong to. Possible authentication protocols are:
None: No authentication protocol.
MD5: An optional flag to indicate that this user uses MD5 authentication protocol.
SHA: An optional flag to indicate that this user uses SHA authentication protocol.
The value of security level cannot be modified if entry already exists. That means must first ensure that the value is set correctly.
- **Authentication Password:** A string identifying the authentication password phrase. For MD5 authentication protocol, the allowed string length is 8 to 32. For SHA authentication protocol, the allowed string length is 8 to 40. The allowed content is ASCII characters from 33 to 126.
- **Privacy Protocol:** Indicates the privacy protocol that this entry should belong to. Possible privacy protocols are:
None: No privacy protocol.
DES: An optional flag to indicate that this user uses DES authentication protocol.
- **Privacy Password:** A string identifying the privacy password phrase. The allowed string length is 8 to 32, and the allowed content is ASCII characters from 33 to 126.
- **Buttons**
Apply: Click to apply changes.
Add new user: Click to add a new user entry.

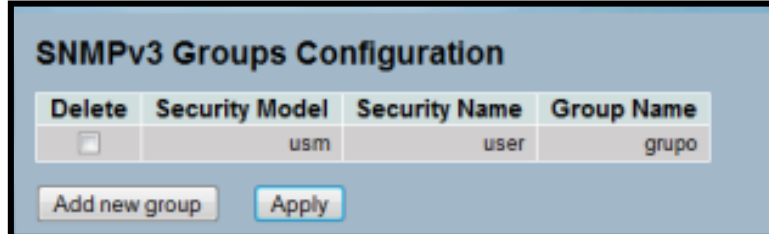
3.1.6.5 Groups

Configure SNMPv3 group table on this page. The entry index keys are **Security Model** and **Security Name**.

Web interface

To configure SNMP in the web interface:

1. Click System, SNMP and Groups.



The screenshot shows the 'SNMPv3 Groups Configuration' web interface. It features a table with the following columns: 'Delete', 'Security Model', 'Security Name', and 'Group Name'. The table contains one entry with 'usm' in the Security Model column, 'user' in the Security Name column, and 'grupo' in the Group Name column. Below the table are two buttons: 'Add new group' and 'Apply'.

Delete	Security Model	Security Name	Group Name
<input type="checkbox"/>	usm	user	grupo

Buttons: Add new group, Apply

Parameter description:

- **Delete:** Check to delete the entry. It will be deleted during the next apply.
- **Security Model:** Indicates the security model that this entry should belong to. Possible security models are:
v1: Reserved for SNMPv1.
v2c: Reserved for SNMPv2c.
usm: User-based Security Model (USM).
- **Security Name:** A string identifying the security name that this entry should belong to. The allowed string length is 1 to 32, and the allowed content is ASCII characters from 33 to 126.
- **Group Name:** A string identifying the group name that this entry should belong to. The allowed string length is 1 to 32, and the allowed content is ASCII characters from 33 to 126.
- **Buttons**
Apply: Click to apply changes.
Add new group: Click to add a new group entry.

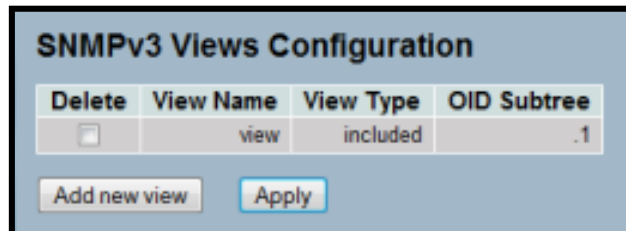
3.1.6.6 Views

Configure SNMPv3 view table on this page. The entry index keys are **View Name** and **OID Subtree**.

Web interface

To configure SNMP in the web interface:

1. Click System, SNMP and Views.



The screenshot shows the 'SNMPv3 Views Configuration' web interface. It features a table with the following columns: 'Delete', 'View Name', 'View Type', and 'OID Subtree'. The table contains one entry with 'view' in the View Name column, 'included' in the View Type column, and '.1' in the OID Subtree column. Below the table are two buttons: 'Add new view' and 'Apply'.

Delete	View Name	View Type	OID Subtree
<input type="checkbox"/>	view	included	.1

Buttons: Add new view, Apply

Parameter description:

- **Delete:** Check to delete the entry. It will be deleted during the next apply.
- **View Name:** A string identifying the view name that this entry should belong to. The allowed string length is 1 to 32, and the allowed content is ASCII characters from 33 to 126.
- **View Type:** Indicates the view type that this entry should belong to. Possible view types are:
included: An optional flag to indicate that this view subtree should be included.
excluded: An optional flag to indicate that this view subtree should be excluded.
In general, if a view entry's view type is 'excluded', there should be another view entry existing with view type as 'included' and its OID subtree should overstep the 'excluded' view entry.
- **OID Subtree:** The OID defining the root of the subtree to add to the named view. The allowed OID length is 1 to 128. The allowed string content is digital number or asterisk(*).
- **Buttons**
Apply: Click to apply changes.
Add new view: Click to add a new view entry.

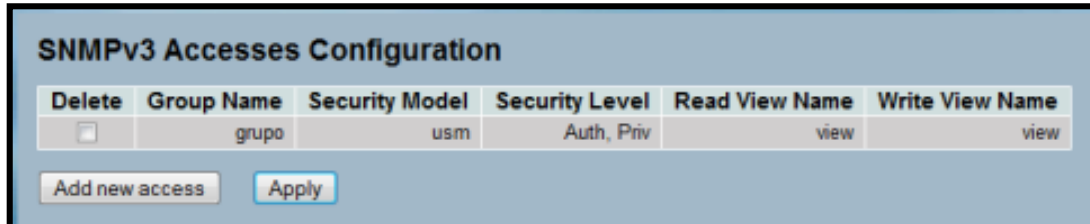
3.1.6.7 Access

Configure SNMPv3 access table on this page. The entry index keys are **Group Name**, **Security Model** and **Security Level**.

Web interface

To configure SNMP in the web interface:

1. Click System, SNMP and Access.



The screenshot shows the 'SNMPv3 Accesses Configuration' web interface. It features a table with the following columns: Delete, Group Name, Security Model, Security Level, Read View Name, and Write View Name. The table contains one entry with the following values: Delete (checkbox), Group Name (grupo), Security Model (usm), Security Level (Auth, Priv), Read View Name (view), and Write View Name (view). Below the table are two buttons: 'Add new access' and 'Apply'.

Delete	Group Name	Security Model	Security Level	Read View Name	Write View Name
<input type="checkbox"/>	grupo	usm	Auth, Priv	view	view

Buttons: Add new access, Apply

Parameter description:

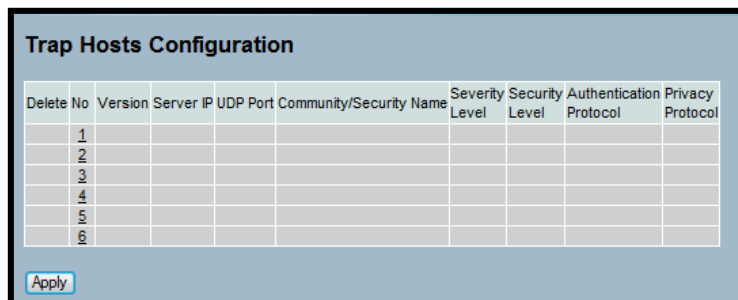
- **Delete:** Check to delete the entry. It will be deleted during the next apply.
- **Group Name:** A string identifying the group name that this entry should belong to. The allowed string length is 1 to 32, and the allowed content is ASCII characters from 33 to 126.
- **Security Model:** Indicates the security model that this entry should belong to. Possible security models are:
any: Any security model accepted(v1|v2c|usm).
v1: Reserved for SNMPv1.
v2c: Reserved for SNMPv2c.
usm: User-based Security Model (USM).
- **Security Level:** Indicates the security model that this entry should belong to. Possible security models are:
NoAuth, NoPriv: No authentication and no privacy.
Auth, NoPriv: Authentication and no privacy.
Auth, Priv: Authentication and privacy.
- **Read View Name:** The name of the MIB view defining the MIB objects for which this request may request the current values. The allowed string length is 1 to 32, and the allowed content is ASCII characters from 33 to 126.
- **Write View Name:** The name of the MIB view defining the MIB objects for which this request may potentially set new values. The allowed string length is 1 to 32, and the allowed content is ASCII characters from 33 to 126.
- **Buttons**
Apply: Click to apply changes.
Add new access: Click to add a new access entry

3.1.6.8 Trap

Web interface

To configure SNMP in the web interface:

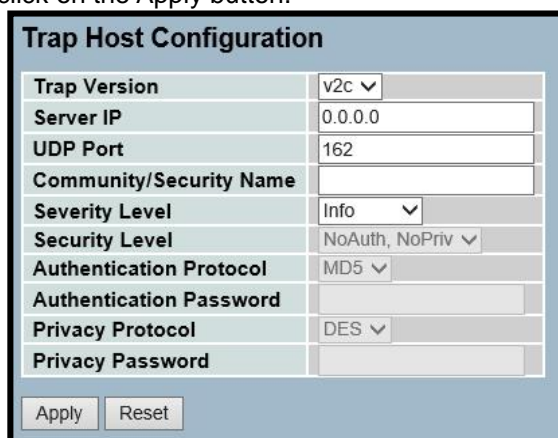
1. Click System, SNMP, Trap and Trap.
2. To edit one of the lines, click on Trap index number.



Delete	No	Version	Server IP	UDP Port	Community/Security Name	Severity Level	Security Level	Authentication Protocol	Privacy Protocol
	1								
	2								
	3								
	4								
	5								
	6								

Apply

3. Set the parameters and click on the Apply button.



Trap Host Configuration	
Trap Version	v2c
Server IP	0.0.0.0
UDP Port	162
Community/Security Name	
Severity Level	Info
Security Level	NoAuth, NoPriv
Authentication Protocol	MD5
Authentication Password	
Privacy Protocol	DES
Privacy Password	

Apply Reset

Parameter description:

- **Trap Version:** You may choose v1, v2c or v3 trap.
- **Server IP:** This is the IP of the trap host.
- **UDP Port:** This is the receiving-port number of the trap host. range : 1 - 65535.
- **Community/Security Name:** Indicates the community access string when sending SNMP trap packet. The allowed string length is 0 to 255, and the allowed content is ASCII characters from 33 to 126.
- **Severity Level:** The Severity Level: Emerg, Alert, Critical, Error, Warning, Notice, Info, Debug.
- **Security Level:** Indicates the security model that this entry should belong to. Possible security models are:
NoAuth, NoPriv: No authentication and no privacy.
Auth, NoPriv: Authentication and no privacy.
Auth, Priv: Authentication and privacy.
- **Authentication Protocol:** Indicates the authentication protocol that this entry should belong to. Possible authentication protocols are:
MD5: An optional flag to indicate that this user uses MD5 authentication protocol.
SHA: An optional flag to indicate that this user uses SHA authentication protocol.
- **Authentication Password:** A string identifying the authentication password phrase. For MD5 authentication protocol, the allowed string length is 8 to 32. For SHA authentication protocol, the allowed string length is 8 to 40. The allowed content is ASCII characters from 33 to 126.
- **Privacy Protocol:** Indicates the privacy protocol that this entry should belong to. Possible privacy protocols are:
DES: An optional flag to indicate that this user uses DES authentication protocol.
- **Privacy Password:** A string identifying the privacy password phrase. The allowed string length is 8 to 32, and the allowed content is ASCII characters from 33 to 126.
- **Buttons**
Apply: Click to apply changes.

3.2 Configuration

3.2.1 Trap Event Severity

This page displays current trap event severity configurations. Trap event severity can also be configured here.

Web interface

To configure Configuration in the web interface:

1. Click Configuration, Trap Event Severity.

Trap Event Severity Configuration	
Group Name	Severity Level
Access Mgmt	Info ▼
CPU Overload	Info ▼
Cold Start	Warning ▼
Config Info	Notice ▼
Dying Gasp Power Failure	Info ▼
EPON No Links Discovery	Info ▼
EPON Link Down	Info ▼
EPON Link Up	Info ▼
Fan Abnormal	Info ▼
Fan Normal	Info ▼
Firmware Upgrade	Info ▼
Import Export	Info ▼
Jumbo Frame Received Error	Info ▼
Key Exchange Failure	Info ▼
Login	Warning ▼
Login Protect	Info ▼
Logout	Info ▼
Loopback	Info ▼
MAC learning table overflow	Info ▼
Mgmt IP Change	Info ▼
NNI Link Down	Info ▼
NNI Link Up	Info ▼
Number of Links Exceeded	Info ▼
OLT Insert	Info ▼
OLT Remove	Info ▼
ONU Power Abnormal	Info ▼
ONU SStatus Change	Info ▼
Passwd Change	Info ▼
Port Security	Warning ▼
Power Abnormal	Info ▼
Power Insert	Info ▼
Power Normal	Info ▼
Power Remove	Info ▼
Queue Overflow	Info ▼
Standard Dying Gasp	Info ▼
Standard Link Fault	Info ▼
Temperature Abnormal	Info ▼
Temperature Normal	Info ▼
Thermal Protect	Info ▼
UNI Link Down	Info ▼
UNI Link Up	Info ▼
Voltage Abnormal	Info ▼
Voltage Normal	Info ▼
Warm Start	Warning ▼

Parameter description:

- **Group Name:** The name identifying the severity group.
- **Group Name:** Every group has an severity level. The following level types are supported:
 - <0> **Emergency:** System is unusable.
 - <1> **Alert:** Action must be taken immediately.
 - <2> **Critical:** Critical conditions.
 - <3> **Error:** Error conditions.
 - <4> **Warning:** Warning conditions.
 - <5> **Notice:** Normal but significant conditions.
 - <6> **Information:** Information messages.
 - <7> **Debug:** Debug-level messages.
- **Buttons**
 - Apply:** Click to apply changes.
 - Reset:** Click to undo any changes made locally and revert to previously saved values.

3.2.2 SMTP Configuration

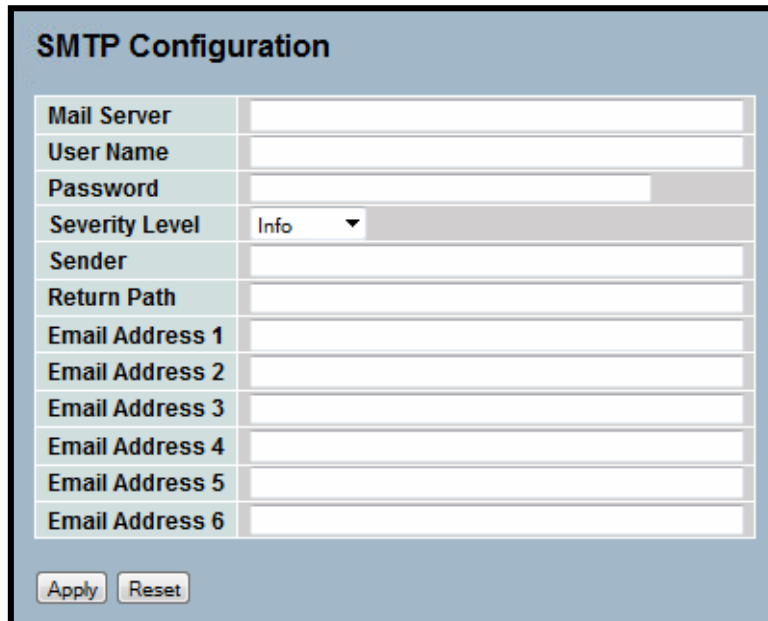
Configure SMTP (Simple Mail Transfer Protocol) on this page. Simple Mail Transfer Protocol is the message-exchange standard for the Internet.

The Management board is to be configured as a client of SMTP while the server is a remote device that will receive messages from the Chassis that alarm events occurred.

Web interface

To configure the SMTP in the web interface:

1. Click Configuration, SMTP Configuration.
2. Complete the fields according to the information below.


Parameter description:

- **Mail Server:** The IP address or hostname of the mail server. IP address is expressed in dotted decimal notation. This will be the device that sends out the mail for you
- **User Name:** Specify the username on the mail server.
- **Password:** Specify the password of the user on the mail server.
- **Severity:** Indicates what kind of message will send to mail server. Possible modes are:
 - <0> **Emergency:** System is unusable.
 - <1> **Alert:** Action must be taken immediately.
 - <2> **Critical:** Critical conditions.
 - <3> **Error:** Error conditions.

<4> Warning: Warning conditions.

<5> Notice: Normal but significant conditions.

<6> Information: Information messages.

<7> Debug: Debug-level messages.

- **Sender:** Specify the sender name of the alarm mail.
- **Return Path:** Specify the sender email address of the alarm mail. This address will be the "from" address on the email message.
- **Email Address # :** Specify the email address of the receiver.
- **Buttons**

Apply: Click to apply changes.

Reset: Click to undo any changes made locally and revert to previously saved values.

3.3 OLT Management

This CO site Chassis supports up to 16 OLT modules. The management functions about OLT modules are described in this section. Let's start from the "OLT View"

3.3.1 OLT VIEW

The "OLT View" table displays model name and port status of all OLTs in the system (from slot 1 to slot 16). Click on a row in this table, the corresponding management function submenu of a specific OLT module will show up.

Web interface

To check the OLT VIEW in the web interface:

1. Click OLT Management, OLT VIEW and OLT VIEW.

OLT View						
Slot	Function	Model Name	Epon-1	Epon-2	NNI-1	NNI-2
1	▼	FK-OLT-20/2	---	---	---	---
2	▼	FK-OLT-20/2	---	---	---	---
3	▼	FK-OLT-20/2	Register	---	Link	---
4	▼	FK-OLT-20/2	---	---	---	---
5	▼	FK-OLT-20/2	---	---	---	---
6	▼	FK-OLT-20/2	---	---	---	---
7	▼	FK-OLT-20/2	---	---	---	---
8	▼	FK-OLT-20/2	---	---	---	---
9	▼	FK-OLT-20	---	---	---	---
10	▼	FK-OLT-20	---	---	---	---
11	▼	FK-OLT-20/2	---	---	---	---
12	▼	FK-OLT-20/2	---	---	---	---
13	▼	FK-OLT-20/2	---	---	---	---
14	▼	FK-OLT-20/2	---	---	---	---
15	▼	FK-OLT-20/2	---	---	---	---
16	▼	FK-OLT-20/2	---	---	---	---

Parameter description:

- **Slot** : Slot Number of each row in this table. Slot 1 is the most left module slot of the physical chassis; slot 16 is the most right one. An empty row (a row without any status data) represents a slot without OLT plugged in.
- **Function**: Show a list of menus for managing the OLT.
- **Model Name**: The model name of the OLT module in a specific slot.
- **Epon-1**: EPON port 1 status
- **Epon-2**: EPON port 2 status
- **NNI-1**: NNI port 1 status
- **NNI-2**: NNI port 2 status

3.3.1.1 Port Config

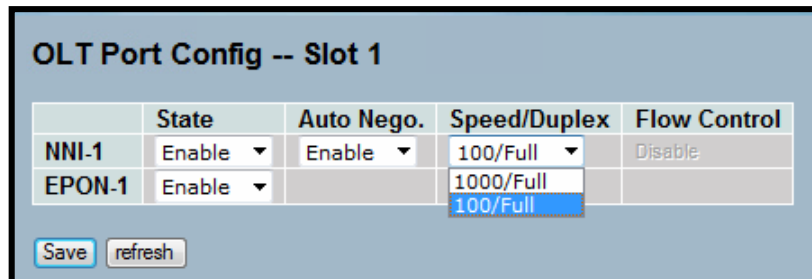
Function description:

Configuration port settings for both NNI and EPON ports on an OLT. Configuration values will not take effect until <Save> button is clicked.

Web interface

To configure OLT Port in the web interface:

- Click OLT Management, OLT VIEW and on the OLT Function choose Port Config.
- FK-OLT-20**



OLT Port Config -- Slot 1

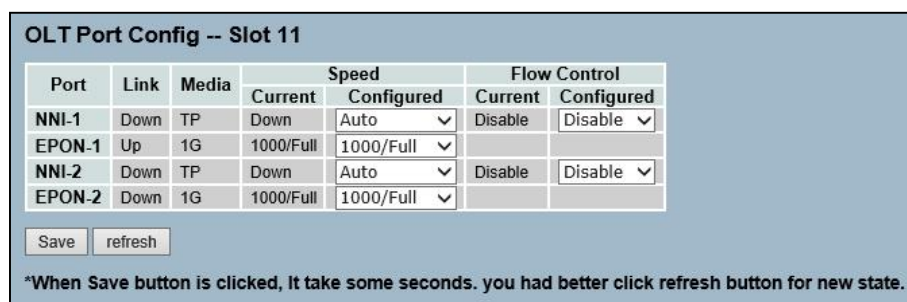
	State	Auto Nego.	Speed/Duplex	Flow Control
NNI-1	Enable ▾	Enable ▾	100/Full ▾	Disable
EPON-1	Enable ▾		1000/Full 100/Full	

Save refresh

Parameter description:

- State:** To configure the management status of both CNI and Epon ports on an OLT. Possible values are [Enable] and [Disable]. Default: [Enable]
 - Auto Nego.:** To configure Auto Negotiation state of the CNI ports on an OLT. Possible values are [Enable] and [Disable]. Default: [Enable]
 - Speed/Duplex:** To configure line speed and duplex mode of the CNI ports on an OLT. Possible values are [1000/Full][100/Full]. Default: [1000/Full]
 - Flow Control:** To configure flow control state of the CNI port of an OLT. Possible values are [Enable] and [Disable]. Default: [Disable]

- FK-OLT-20/2**



OLT Port Config -- Slot 11

Port	Link	Media	Speed		Flow Control	
			Current	Configured	Current	Configured
NNI-1	Down	TP	Down	Auto ▾	Disable	Disable ▾
EPON-1	Up	1G	1000/Full	1000/Full ▾		
NNI-2	Down	TP	Down	Auto ▾	Disable	Disable ▾
EPON-2	Down	1G	1000/Full	1000/Full ▾		

Save refresh

*When Save button is clicked, It take some seconds. you had better click refresh button for new state.

Parameter description:

- Link:** show the current status of the port.
- Media:** show the port type of media. Twisted-pair(TP) or transceiver (1G).
- Speed:** the column Current show the present configuration and the column Configured allow the user to configure the speed.
- Flow Control:** the column Current show the present configuration and the column Configured allow the user to configure enable and disable the flow control.
- Buttons**
 - Save:** Click to Save changes.
 - Refresh:** Click to refresh the page.

3.3.1.2 OLT Statistics

Function description:


Requests statistics related to the specified ports including Epon port and NNI port. The transferring direction supports upstream and downstream. If you click Refresh button, the statistics information will be displayed. If Clear button is clicked, the statistics information will be cleared. Upstream direction reflects the traffic from Epon port to NNI port. Downstream direction reflects the traffic from NNI port to Epon port.

Web interface

To check the OLT Statistics in the web interface:

1. Click OLT Management, OLT VIEW and on the OLT Function choose Statistics/OLT Statistics.

- **FK-OLT-20**



Statistic	Count
Octets transferred	3968720704668
Total Frames transferred	16106182374
Unicast Frames transferred	16106182324
Broadcast Frames transferred	0
Multicast Frames transferred	0
CRC-32 Errors	254
Undersize Frames	0
Oversize Frames	0
Collisions	0
64 Octet Frames	-
65-127 Octet Frames	-
128-255 Octet Frames	-
256-511 Octet Frames	-
512-1023 Octet Frames	-
1024-1518 Octet Frames	-
1519+ Octet Frames	-
Frames dropped(queue overflow)	0
Octets dropped(queue overflow)	0
Octets delayed(units of 100 us)	0
Octets granted	0
CRC-8(Preamble) errors	7
Pause Frames	-

Parameter description:

- **Selectable Ports as below:**
 - EPON-1 Port
 - NNI-1 Port
- **Selectable mode show Upstream or Downstream statistics.**
- **Button:**
 - Refresh: updates the statistics.
 - Clear: Clear the statistics.
 - Auto-refresh: Updates the statistics automatically.

- **FK-OLT-20/2**

OLT Port Statistics		Auto-refresh <input type="checkbox"/> Refresh Clear
Slot 2		
EPON Port-1		
OLT EPON LIF Transmit		
Name	Value	
Bytes Transferred	691366784	
Frames Transferred	5692397	
CRC8 Errors	-	
FEC Blocks Transferred	0	
Error Frames Received	-	
Line Code Errors	-	
None-Error FEC Blocks	-	
Correctable FEC Blocks	-	
Uncorrectable FEC Blocks	-	
Correctable FEC Bytes	-	
Post-FEC Good Frames	-	
Post-FEC Bad Frames	-	
Pre-FEC Good Frames	-	
Pre-FEC Bad Frames	-	
Laser Idle Power	-	
Laser Power	0	
Laser VCC	0	
Laser Bias	0	
Laser Temperature	0	
FEC Packet Too Long Events	-	

Parameter description:

- **Selectable Ports as below:**
EPON Port-1 / EPON Port-2
NNI Port-1/ NNI Port-2
- **Selectable mode show transmit or receive statistics.**
- **Button:**
Refresh: updates the statistics.
Clear: Clear the statistics.
Auto-refresh: Updates the statistics automatically.

3.3.1.3 Information

3.3.1.3.1 OLT Information

Web interface

To check the OLT Information in the web interface:

1. Click OLT Management, OLT VIEW and on the OLT Function choose Information/OLT Information.

OLT Information -- Slot 1	
Model Name	FK-OLT-20
Serial Number	09LT20000003
Output Optical Center Wavelength (nm)	1490
Min. TX Power (dBm)	3.5
Max. TX Power (dBm)	7
Min. RX Operating Wavelength (nm)	1260
Max. RX Operating Wavelength (nm)	1360
RX Sensitivity (dBm)	-27
RX Saturation Power (dBm)	-6
Mac Address	00-40-c7-48-00-d0
Firmware Version	0x141
Chip ID	0x3721
Chip Version	0xa0040219
Boot Code Version	0xb842
Personality Version	f6
App0 Version	0x141
App1 Version	0x141

FK-OLT-20

OLT SFP Information	
OLT Information -- Slot 11	
Model Name	FK-OLT-20/2
Serial Number	14LT23000019
Mac Address	b8-26-d4-00-08-13
Firmware Version	0x242
Chip ID	0x3723
Chip Version	0xa0071101
Boot Code Version	0x240
Personality Version	f13
App0 Version	0x242
App1 Version	0x242

FK-OLT-20/2

Parameter description:

- **Model Name:** OLT module model name
- **Serial Number:** OLT module serial number
- **Mac Address:** The globally unique Mac Address of an OLT. The Mac Address is primarily used within an EPON system to identify the OLT.
- **Firmware Version:** The version number of the (app)firmware currently running on the OLT EPON chip.
- **Chip ID:**The EPON chip type of the OLT.
- **Chip Version:** The hardware version number of the EPON chip inside the OLT.
- **Boot Code Version:** the fir5mware version number of the bootstrap code residing in the OLT EPON chip.
- **Personality Version:** Personality is an area in the flash memory inside the OLT.This non-volatile memory keeps the most basic and default provisioning information of an OLT. When an OLT boots up, some provisioning information must be fetched from the personality area.
- **App0, App1 Version:** Two memory areas are allocated within the OLT flash for the redundant storing of the EPON application firmware. App0 is the primary one. If app0 is crashed and unable to be loaded, app1 will be the backup. When one application firmware load crashing is detected, the backup load will be automatically replicated to keep the redundancy.

3.3.1.3.2 SFP Information (only for FK-OLT-20/2)

SFP fiber transceiver information on OLT module. Available for the model FK-OLT-20/2.

Web interface

To check the SFP information in the web interface:

- Click OLT Management, OLT VIEW , on the OLT Function choose OLT Information and press the button OLT SFP Information.

OLT Information

OLT SFP Information

EPON-0 ▼

Name	Value
Identifier	SFP
Connector Type	SC
Encoding	8B10B
BR, Nominal	13
Vendor Name	Hisense
Vendor OUI	00-00-00
Vendor PN	LTE4302M-BC+
Vendor Rev	1.0
Wavelength	1490

Parameter description:

- **Identifier:** Show the type of the transceiver.
- **Connector Type :** Show the type of the optical connector.
- **Encoding:** Show the type of encoding
- **BR, Nominal:**
- **Vendor Name :** Show the name of the vendor.
- **Vendor OUI :** Show the vendor's OUI information.
- **Vendor PN:** Show the vendor's part number.
- **Vendor Rev:** Show the vendor's product version.
- **Wavelength :** show the transmitting wavelength.

3.3.1.4 Redundancy between ports (only for FK-OLT-20/2)

Web interface

To configure the redundancy between ports for the FK-OLT-20/2 in the web interface:

1. Click OLT Management, OLT VIEW and on the OLT Function choose Redundant.

OLT Redundant -- Slot 11

Enable	<input type="checkbox"/>
Master	EPON-1 ▼
Slave	EPON-1 ▼
EPON-1 Status	On
EPON-2 Status	On

*OLT Redundant Enable means that EPON-1 and EPON-2 are mutual redundancies.
 *When OLT Redundant Enable, Master must be different from Slave.
 *Master port is working port. Slave port is redundant port.
 *If ONUs have EPON-1 records in All Known Links in OLT, they can't register in EPON-2 except delete the records of the ONUs first.
 *If you want to keep redundant value,you had better Save Start.

Parameter description:

- **Enable :** OLT Redundant Enable means that EPON-1 and EPON-2 are mutual redundancies.Note: When OLT Redundant is Enable, Master must be different from Slave.
- **Master:** Master port is working port.
- **Slave:** Slave port is redundant port.
- **EPON-# Status:** Show the status of the EPON port, usually the Slave port is off.
- **Buttons**
 - Save:** Click to Save changes.
 - Refresh:** Click to refresh the page.

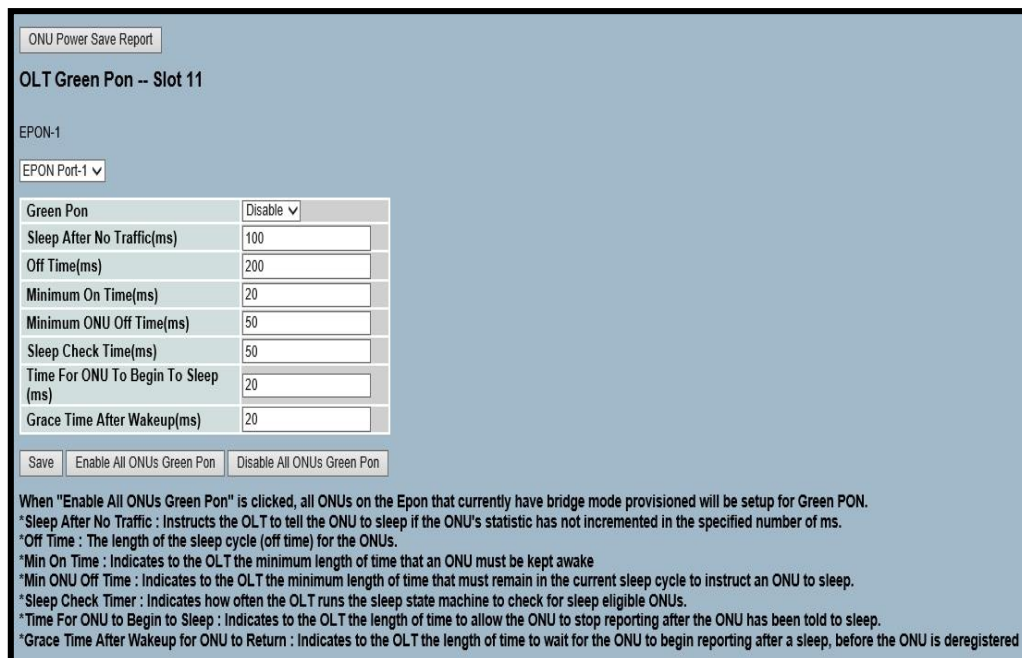
3.3.1.5 Green Pon function (only for FK-OLT-20/2)

3.3.1.5.1 Green Pon

Web interface

To configure the Green PON for the FK-OLT-20/2 in the web interface:

1. Click OLT Management, OLT VIEW , on the OLT Function choose OLT Green Pon.



ONU Power Save Report

OLT Green Pon -- Slot 11

EPON-1

EPON Port-1 ▾

Green Pon	Disable ▾
Sleep After No Traffic(ms)	100
Off Time(ms)	200
Minimum On Time(ms)	20
Minimum ONU Off Time(ms)	50
Sleep Check Time(ms)	50
Time For ONU To Begin To Sleep (ms)	20
Grace Time After Wakeup(ms)	20

Save Enable All ONUs Green Pon Disable All ONUs Green Pon

When "Enable All ONUs Green Pon" is clicked, all ONUs on the Epon that currently have bridge mode provisioned will be setup for Green PON.
 *Sleep After No Traffic : Instructs the OLT to tell the ONU to sleep if the ONU's statistic has not incremented in the specified number of ms.
 *Off Time : The length of the sleep cycle (off time) for the ONUs.
 *Min On Time : Indicates to the OLT the minimum length of time that an ONU must be kept awake
 *Min ONU Off Time : Indicates to the OLT the minimum length of time that must remain in the current sleep cycle to instruct an ONU to sleep.
 *Sleep Check Timer : Indicates how often the OLT runs the sleep state machine to check for sleep eligible ONUs.
 *Time For ONU to Begin to Sleep : Indicates to the OLT the length of time to allow the ONU to stop reporting after the ONU has been told to sleep.
 *Grace Time After Wakeup for ONU to Return : Indicates to the OLT the length of time to wait for the ONU to begin reporting after a sleep, before the ONU is deregistered

Parameter description:

- **Green Pon:** When configured to "Enable", enables the green pon function for the PON port. To enable the function to the ONUs it is necessary to click in the button "Enable All ONUs Green Pon".
- **Sleep After No Traffic(ms):** Instructs the OLT to tell the ONU to sleep if the ONU's statistic has not incremented in the specified number of ms.
- **Off Time(ms):** The length of the sleep cycle (off time) for the ONUs.
- **Minimum On Time(ms):** Indicates to the OLT the minimum length of time that an ONU must be kept awake.
- **Minimum ONU Off Time(ms):** Indicates to the OLT the minimum length of time that must remain in the current sleep cycle to instruct an ONU to sleep.
- **Sleep Check Time(ms):** Indicates how often the OLT runs the sleep state machine to check for sleep eligible ONUs.
- **Time For ONU To Begin To Sleep(ms):** Indicates to the OLT the length of time to allow the ONU to stop reporting after the ONU has been told to sleep.
- **Grace Time After Wakeup(ms):** Indicates to the OLT the length of time to wait for the ONU to begin reporting after a sleep, before the ONU is deregistered
- **Buttons**
 - Save:** Click to Save changes.
 - Enable All ONUs Green Pon:**
Click on this button to enable all ONUs power saving function
 - Disable All ONUs Green Pon:**Click on this button to disable all ONUs power saving function.

The recommended configuration is the one showed below:

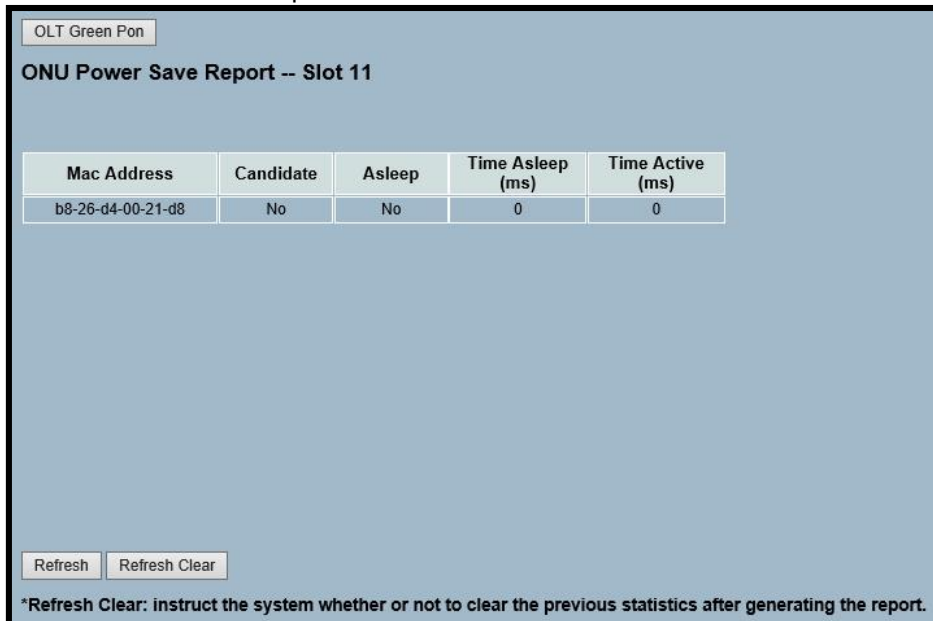
Sleep After No Traffic(ms)	100
Off Time(ms)	200
Minimum On Time(ms)	80
Minimum ONU Off Time(ms)	50
Sleep Check Time(ms)	50
Time For Onu To Begin To Sleep(ms)	20
Grace Time After Wakeup(ms)	60

3.3.1.5.2 Power Save Report

Web interface

To check the Power Save Report in the web interface:

1. Click OLT Management, OLT VIEW , on the OLT Function choose OLT Green Pon and press the button Power Save report.



OLT Green Pon

ONU Power Save Report -- Slot 11

Mac Address	Candidate	Asleep	Time Asleep (ms)	Time Active (ms)
b8-26-d4-00-21-d8	No	No	0	0

Refresh Refresh Clear

*Refresh Clear: instruct the system whether or not to clear the previous statistics after generating the report.

Parameter description:

- **Mac Address**
Show all CPE site ONU's MAC address
- **Candidate:**
Show if the ONU is a eligible to sleep or not.
- **Asleep:**
 - Show if the ONU is asleep or not.
- **Time Asleep(ms):**
 - Show the amount of time that the ONU slept.
- **Time Active(ms):**
Show the amount of time that the ONU was awake.
- **Buttons**
 - Refresh:** Click to refresh the page.
 - Refresh Clear:** instruct the system whether or not to clear the previous statistics after generating the report.

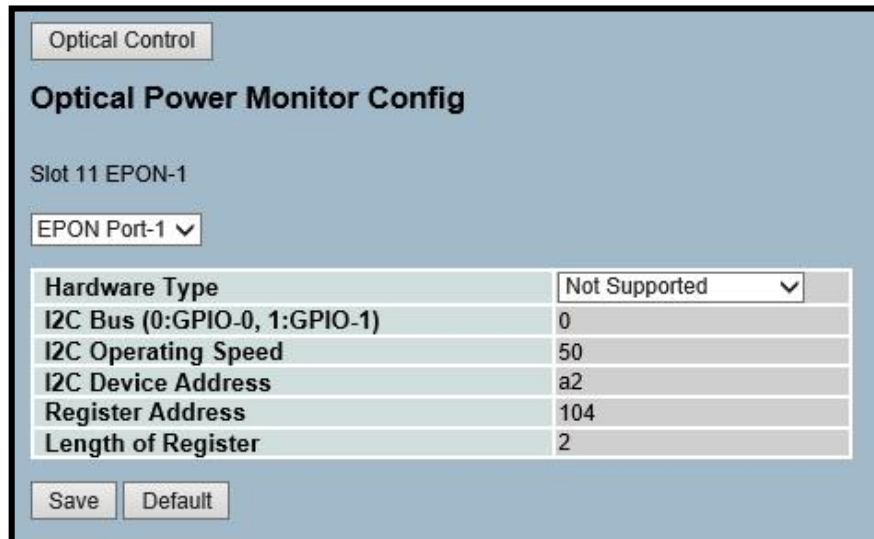
3.3.1.6 Optical Power Monitor Config (only for FK-OLT-20/2)

3.3.1.6.1 Optical Power Monitor Config

Web interface

To configure the Optical Power Monitor for the FK-OLT-20/2 in the web interface:

1. Click OLT Management, OLT VIEW and on the OLT Function choose OLT Optical Power Monitor.



Optical Power Monitor Config	
Slot 11 EPON-1	
EPON Port-1 ▾	
Hardware Type	Not Supported ▾
I2C Bus (0:GPIO-0, 1:GPIO-1)	0
I2C Operating Speed	50
I2C Device Address	a2
Register Address	104
Length of Register	2
Save Default	

Parameter description:

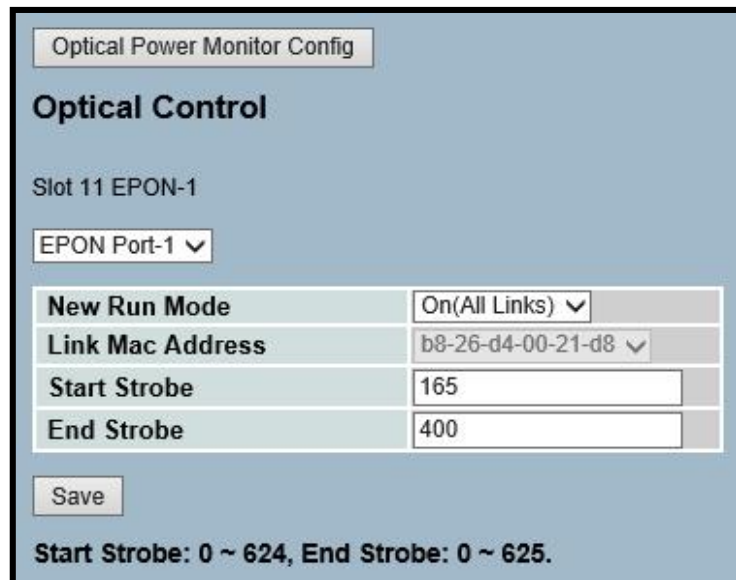
- **Hardware Type**
 - Must be selected to enable the function.
 - The option available is SFF-8472 Compliant.
- **I2C Bus(0:GPIO-0, 1:GPIO-1)**
- **I2C Operating Speed**
- **I2C Device Address**
- **Register Address**
- **Length of Register**
- **Buttons**
 - Save:** Click to Save changes.
 - Default:** Reset to default.

3.3.1.6.2 Optical Control

Web interface

To configure the Optical control for the FK-OLT-20/2 in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose OLT Optical Power Monitor and press the button Optical Control.



Optical Power Monitor Config	
Optical Control	
Slot 11 EPON-1	
EPON Port-1 ▼	
New Run Mode	On(All Links) ▼
Link Mac Address	b8-26-d4-00-21-d8 ▼
Start Strobe	165
End Strobe	400
<input type="button" value="Save"/>	
Start Strobe: 0 ~ 624, End Strobe: 0 ~ 625.	

Parameter description:

- **New Run Mode**
Define in which links the the optical control function will be enabled.
- **Link Mac Address**
MAC address of the logical link.
- **Start Strobe**
0 ~ 624
- **End Strobe**
0 ~ 625
- **Buttons**
Save: Click to Save changes.

3.3.1.7 Traffic Management

3.3.1.7.1 Filter Rules

Web interface

To configure OLT Filter Rules in the web interface:

1. Click OLT Management, OLT VIEW , on the OLT Function choose Traffic Management/OLT Traffic Management.

There are two ways to configure the OLT Filter Rules. The first way is to define rules to every traffic that pass through the port (EPON or NNI) using the option OLT Port Filter Rules and the second way is to filter only the traffic from an specific logical link using the option OLT Link Filter.

For FK-OLT-20:

OLT Link Filter

OLT Port Filter Rules

Slot 1

Port EPON-1 ▼

	Pri	Action	Direction	Field Select	Op	Value
<input type="radio"/>	3	Discard	Upstream	Eth VID	==	10

Add
Delete

OLT Port Filter

OLT Link Filter Rules

Slot 1
OnuMac = 00-80-bd-e1-b3-58

Link 00-80-bd-e1-b3-58 ▼

	Pri	Action	Direction	Field Select	Op	Value
<input type="radio"/>	3	Discard	Upstream	Eth VID	==	10

Add
Delete

Parameter description:

- **Port:** indicate the port in which the rule will be applied.
- **Pri:** show the priority of the rule
- **Action:** show the function of the rule
- **Direction:** show in what direction the rule will be applied.
Rules configured for the EPON port will be applied on the Upstream and the ones configured on the NNI (Uplink) port will be applied on the downstream.

- **Field Select:** show what field will be checked
- **Op:** show what condition will be tested
- **Value:** show the value to be used as reference for the comparison.
- **Buttons**
 - Add:** Click on this button to add new filtering rule
 - Delete:** Click on this button to delete selected filtering rule

For the FK-OLT-20/2:

OLT Link Filter

OLT Port Filter Rules

Slot 11 Epon-1

Port
EPON-1

	Pri	Action	Direction	Field Select	Op	Value
<input checked="" type="radio"/>	7	Set Discard Flag PortBitmap 0x0c;	Upstream	Destination Mac	==	0x0000000000000001

Add
Delete

PortBitmap is Bit0:Epon-1, Bit1:Epon-2, Bit2:NNI-1, Bit3:NNI-2.If PortBitmap is 0x0C, it represent NNI-1 and NNI-2.

OLT Link Filter

OLT Port Filter Rules

Slot 11 NNI-1

Port
NNI-1

	Pri	Action	Direction	Field Select	Op	Value
<input checked="" type="radio"/>	7	Set Discard Flag PortBitmap 0x03;	Downstream	Destination Mac	==	0x0000000000000008

Add
Delete

PortBitmap is Bit0:Epon-1, Bit1:Epon-2, Bit2:NNI-1, Bit3:NNI-2.If PortBitmap is 0x0C, it represent NNI-1 and NNI-2.

Parameter description:

- **Port:** indicate the port in which the rule will be applied.
- **Pri:** show the priority of the rule
- **Action:** show the function of the rule and the destination port based on the port bitmap.
- **Direction:** show in what direction the rule will be applied.
Rules configured for the EPON port will be applied on the Upstream and the ones configured on the NNI (Uplink) port will be applied on the downstream.
- **Field Select:** show what field will be checked
- **Op:** show what condition will be tested
- **Value:** show the value to be used as reference for the comparison.
- **Buttons**
 - Add:** Click on this button to add new filtering rule
 - Delete:** Click on this button to delete selected filtering rule

3.3.1.7.2 Add

Web interface

To Add an OLT Filter Rule in the web interface:

1. Click OLT Management, OLT VIEW , on the OLT Function choose Traffic Management and click on the button Add.
2. Select the Field that will be analyzed, the options are listed below:

FK-OLT-20	FK-OLT-20/2
L2 Dest Addr	Destination MAC
L2 Source Addr	Source MAC
L2 Length Type	Ether type
Eth VID	Svlan0/ Svlan 1
IPv4 Protocol	Cvlan0 / Cvlan 1
	Ip priority / IpV6 Traffic Class
	IpV6 NextHeader
	Ip Ttl / IpV6 Hoop Limit
	Ip protocol
	Ip SA / Ipv6 SA [63:0]
	Ipv6 SA [127:64]
	Ip DA / IpV6 DA [63:0]
	IpV6 DA [127:64]
	TCP/UDP Source Port
	TCP/UDP Destination Port

3. Select the Operator, the options are listed below:

Fail
==
!=
<=
>=
exist
!exist
True

4. Define Value Type : Hexadecimal, decimal or IP format.
5. Inform the Value for comparison.
6. Click on the button Add Clause.
7. Click on the button Apply.
8. Define the priority or precedence of the rule.
9. For the FK-OLT-20/2, there's two possible actions: Set discard Flag, will drop the packets that applies to the rule, and the Clear Discard Flag, that will forward the packet that applies to the rule. For the FK-OLT-20, the OLT will always drop the packet that applies to the rule.
10. For the FK-OLT-20/2, there's also the option port bitmap, that indicated the destination port of the packet. The options are listed below:

The rule is applied to the source port:	Possible destination ports:	Obs.
EPON 1/ EPON 2	Automatic	EPON 1 <-> NNI1 EPON2 <-> NNI2
	NNI1	
	NNI2	
	NNI1 & NNI 2	
NNI1/NNI2	Automatic	NNI1 <-> EPON 1 NNI2 <-> EPON 2
	EPON1	
	EPON2	
	EPON1 & EPON2	

Rules Add -- Slot 1

Priority (suggested value:3)	3 ▼
Port	NNI-1
<input type="button" value="Apply"/>	<input type="button" value="Cancel"/>

	Field	Operator	Value Type	Lookup Value

<input type="button" value="Add Clause"/>	<input type="button" value="Unselect"/>	<input type="button" value="Del Clause"/>	
Field Select	Op	Value Type	Value
L2 Dest Addr ▼	Fail ▼	Hex ▼	<input type="text"/>

Mac address use Hex format. It is aabbccddeeff, ex:001122334455.
Decimal format is a unsigned integer and maximum value is 4294967295.

FK-OLT-20

Slot 11 Epon-1

Action	Precedence	Bitmap	
Set Discard Flag ▼	7 ▼	Automatic ▼	
<input type="button" value="Apply"/>	<input type="button" value="Cancel"/>		

	Field	Operator	Value Type	Lookup Value

<input type="button" value="Add Clause"/>	<input type="button" value="Unselect"/>	<input type="button" value="Del Clause"/>	
Field Select	Op	Value Type	Value
Destination Mac ▼	Fail ▼	Hex ▼	<input type="text"/>

IP format is a.b.c.d. ex:192.168.1.160.
Mac address use Hex format. It is aabbccddeeff, ex:001122334455.
Decimal format is a unsigned integer and maximum value is 4294967295.

FK-OLT-20/2

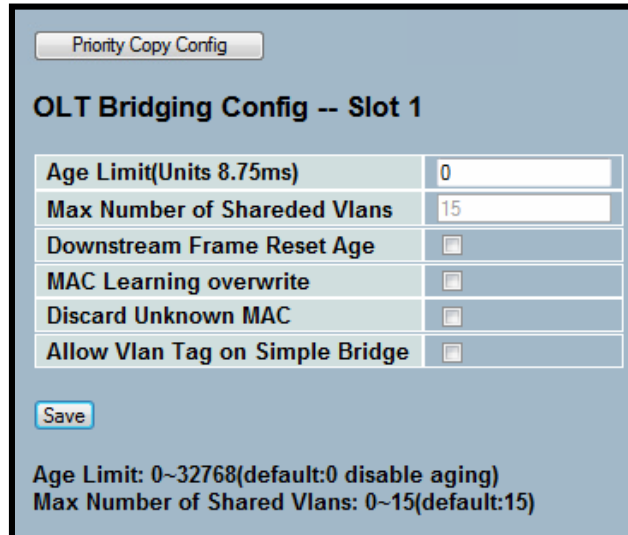
3.3.1.8 Adv. Bridging Config

3.3.1.8.1 Bridging Config

Web interface

To configure OLT Bridging Config VIEW in the web interface:

1. Click OLT Management, OLT VIEW and on the OLT Function choose Adv.Bridging Config/OLT Bridging Config.



Priority Copy Config

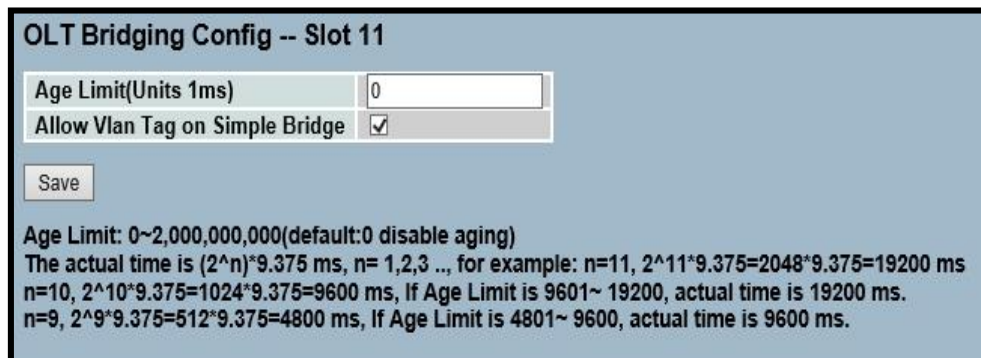
OLT Bridging Config -- Slot 1

Age Limit(Units 8.75ms)	0
Max Number of Shareded Vlans	15
Downstream Frame Reset Age	<input type="checkbox"/>
MAC Learning overwrite	<input type="checkbox"/>
Discard Unknown MAC	<input type="checkbox"/>
Allow Vlan Tag on Simple Bridge	<input type="checkbox"/>

Save

Age Limit: 0~32768(default:0 disable aging)
Max Number of Shared Vlans: 0~15(default:15)

FK-OLT-20



OLT Bridging Config -- Slot 11

Age Limit(Units 1ms)	0
Allow Vlan Tag on Simple Bridge	<input checked="" type="checkbox"/>

Save

Age Limit: 0~2,000,000,000(default:0 disable aging)
The actual time is (2^n)*9.375 ms, n= 1,2,3 ..., for example: n=11, 2^11*9.375=2048*9.375=19200 ms
n=10, 2^10*9.375=1024*9.375=9600 ms, If Age Limit is 9601~ 19200, actual time is 19200 ms.
n=9, 2^9*9.375=512*9.375=4800 ms, If Age Limit is 4801~ 9600, actual time is 9600 ms.

FK-OLT-20/2

Parameter description:

- **Age Limit** : defines how long a MAC address is going to be kept on the MAC Dynamic Table.
- **Max Number of Shared Vlans**: show the maximum number o Shared Vlans that can be configured.
- **Downstream Frame Reset Age**: Frames received by the OLT LNP port reset the learned entry age value for dynamic entries based on DA of incoming frame. In this mode upstream frames will also reset the age value based on SA as normal.
Default: disable
- **MAC learning overwrite**: Controls how SA Learning behaves after the per-link Learning table is full. This option is set to 1 to overwrite the oldest learned entry in favor of a new MAC.
Default: disable.
- **Discard Unknown MAC**: When enabled will cause the OLT to drop downstream frames with unknown DAs (i.e. it does not forward on the Broadcast link).
Default: disable
- **Allow Vlan Tag on Simple Bridge**: tagged packets are forwarded on simple bridge.
- **Buttons**
Save: Click to Save changes.

3.3.1.8.2 Priority Copy Config (only for FK-OLT20)

Function description:

This command sets up the priority conversion table on the OLT for the priority remapping VLAN modes (e.g. Priority Remapping Single VLAN). When a logical link is in a Priority Remapping based VLAN mode, the OLT looks at a specified priority value in the upstream frames and adds a VLAN tag with a COS from the mapping table.

The Priority Mode A/B is a 16-bit value that selects what priority field to lookup in the input frame. Currently the values 0x1545 for Mode A (to select IP-TOS) and 0x1743 for Mode B (to select COS) may be used. The precedence field selects which priority mode (s) to use and in what order. In case the upstream frame does not match the given priority modes, the OLT outputs a default COS value.

As an example, the command, {Priority Mode A = 0x1545; Priority Mode B = 0; Precedence = 0; Default COS = 0; N=8 (1, 1, 2, 2, 3, 3, 4, 4); M = 0} maps TOS values [0, 1] to COS 1, TOS [2, 3] to COS 2 etc. When there is no TOS in the input frame (non-IP frame), the COS value is 0. Priority Mode B is not used in the example and the empty table for Priority Mode B is indicated by setting M = 0.

Web interface

To configure the Priority Copy Config for the FK-OLT-20 in the web interface:

1. Click OLT Management, OLT VIEW and on the OLT Function choose Adv.Bridging Config and click the button Priority Copy Config.

OLT Bridging Config

Advanced Bridging Config : Priority Copy Config -- Slot 1

Priority Mode A	IP-TOS ▼
Priority Mode B	COS ▼
A/B Precedence	Mode A Over B ▼
Default Output COS	<input style="width: 80%;" type="text" value="7"/>
Priority Mode A Table Size	<input style="width: 80%;" type="text" value="8"/>
Priority Mode B Table Size	<input style="width: 80%;" type="text" value="8"/>

Priority Mode A Table		Priority Mode B Table	
Priority 0	<input style="width: 40%;" type="text" value="0"/>	Priority 0	<input style="width: 40%;" type="text" value="0"/>
Priority 1	<input style="width: 40%;" type="text" value="1"/>	Priority 1	<input style="width: 40%;" type="text" value="1"/>
Priority 2	<input style="width: 40%;" type="text" value="2"/>	Priority 2	<input style="width: 40%;" type="text" value="2"/>
Priority 3	<input style="width: 40%;" type="text" value="3"/>	Priority 3	<input style="width: 40%;" type="text" value="3"/>
Priority 4	<input style="width: 40%;" type="text" value="4"/>	Priority 4	<input style="width: 40%;" type="text" value="4"/>
Priority 5	<input style="width: 40%;" type="text" value="5"/>	Priority 5	<input style="width: 40%;" type="text" value="5"/>
Priority 6	<input style="width: 40%;" type="text" value="6"/>	Priority 6	<input style="width: 40%;" type="text" value="6"/>
Priority 7	<input style="width: 40%;" type="text" value="7"/>	Priority 7	<input style="width: 40%;" type="text" value="7"/>

Save

3.3.1.9 DBA

Drop Down Weight, Broadcast SLA, Aggregate Shaper, Priority Range, and Polling Rate determine the operation of Dynamic Bandwidth Allocation (DBA). The DBA use a Weighted Hierarchical Round Robin scheduler (WHRR). It allows network operator to provision Service Level Agreements (SLAs) on per Logical Link ID (LLID) basic. Each SLA has the four parameters, Minimum Guaranteed Bandwidth (Min Bw), Maximum Allowable Bandwidth (Max Bw), Burst Size, and Delay Tolerance. The system implements the Aggregate Shaper, which ensures that the Maximum Allowable Bandwidth and Burst Size do not exceed what was determined on the SLA. The DBA uses queue length status received from ONU Report messages, along with the SLA parameters, to calculate bandwidth allocation. There are up to 3 levels of hierarchy support for the FK-OLT-20 and up to 8 for the FK-OLT-20/2. Each LLID can mapped to a priority level and it is serviced using Round Robin Scheduling. The priority level of the LLID is determined by its SLA.

The 3 levels of FK-OLT-20 are show as below.

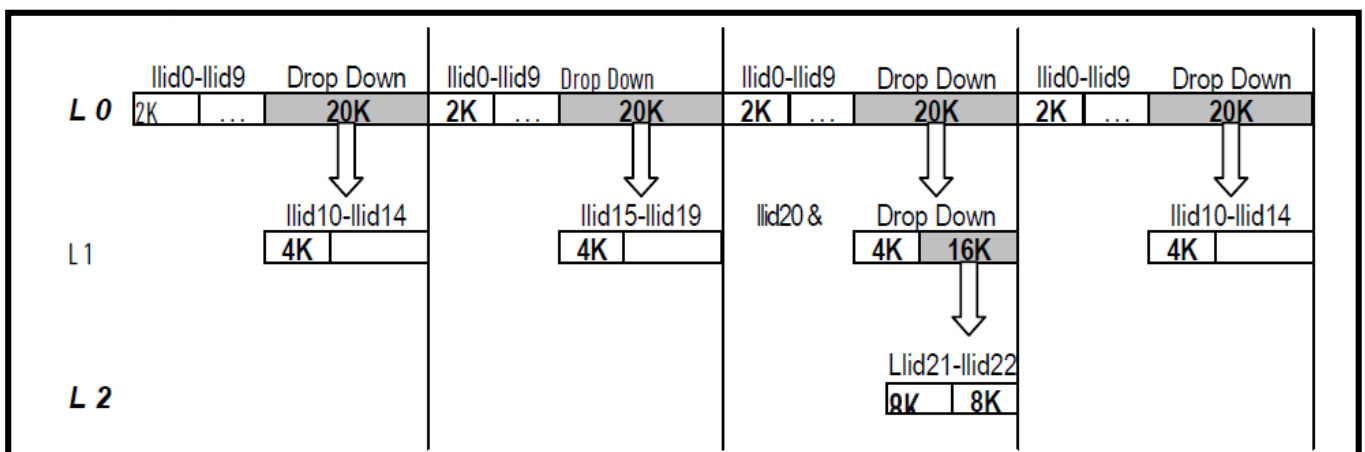
Priority Level	Delay Sensitive	Min Bw / Max Bw
0 (high)	Sensitive	Max Bw = Min Bw
1 (medium)	Tolerant	Min Bw > 0
2 (low)	Tolerant	Min Bw = 0

The DBA Scheduler depends on Drop Down weight to give next level total size.

For example:

- LLIDs of Level 0: 0 ~ 9 < token size: 2K / Drop Down Weight: 20K >
- LLIDs of Level 1: 10 ~ 20 < token size: 4K / Drop Down Weight: 20K >
- LLIDs of Level 2: 21 ~ 29 < token size: 8K >

The below diagram illustrates the DBA Scheduler.



For the FK-OLT-20/2 there are 8 levels as shown below:

The DBA Scheduler depends on Drop Down weight to give next level total size.

For example:

LLIDs of Level 1: 10 ~ 12 < token size: 8K&24K / Drop Down Weight: 40K >

LLIDs of Level 2: 1 ~ 3 < token size: 16K&32K / Drop Down Weight: 64K >

LLIDs of Level 3: 7 ~ 9 < token size: 32K / Drop Down Weight: 64K >

The below diagram illustrates the DBA Scheduler.

Scheduler Priority Level	LLID #10	LLID #11	LLID #12	Drop Down
0	Wt 8 KB	Wt 8 KB	Wt 24 KBytes	Wt 40 KBytes

Scheduler Priority Level	LLID #1	LLID #2	LLID #3	Drop Down
2	Wt 16 KB	Wt 16 KB	Wt 32 Kbytes	Wt 64 KBytes

Scheduler Priority Level	LLID #7	LLID #8	LLID #9	Drop Down
3	Wt 32 KB	Wt 32 KB	Wt 32 KB	Wt 64 KBytes

•
•
•

Scheduler Priority Level

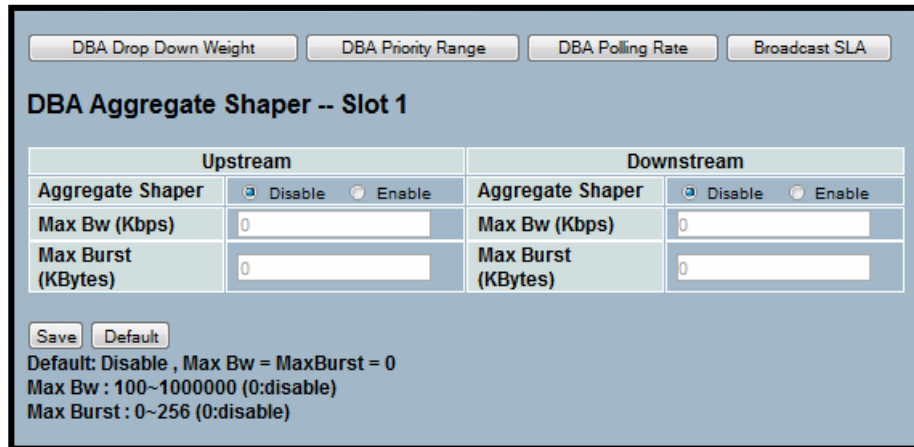
7

3.3.1.9.1 Aggregate Shaper

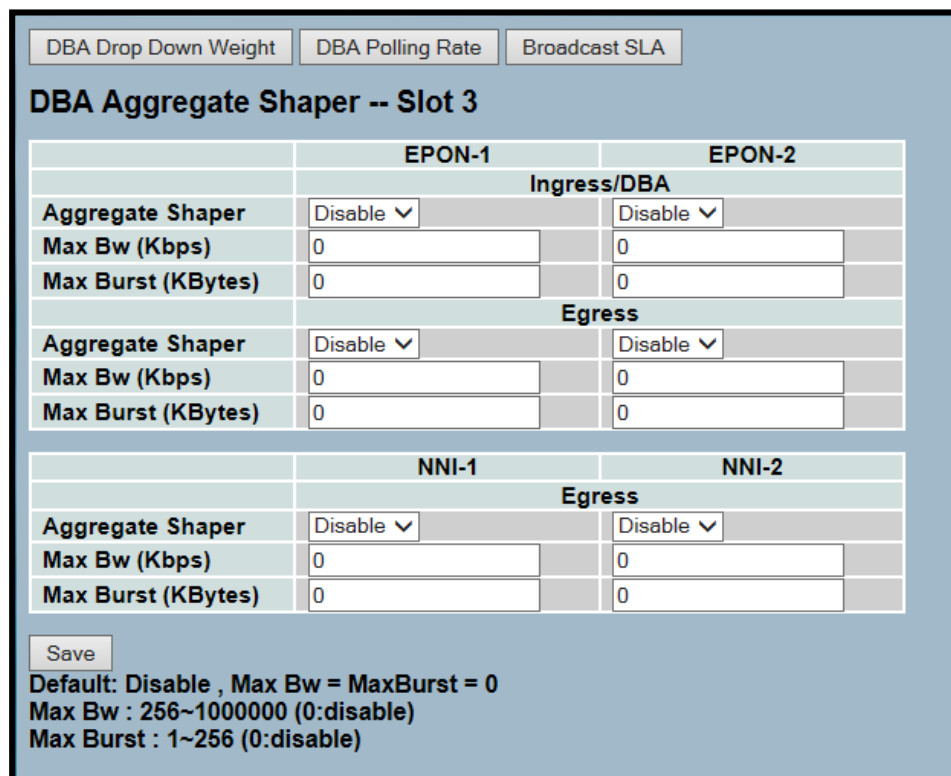
Web interface

To configure Aggregate Shaper in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose DBA.



FK-OLT-20



FK-OLT-20/2

Parameter description:

- **Aggregate Shaper**
- **Max Bw(Kbps)**
256~1000000 (0:disable)
- **Max Burst(Kbytes)**
1~256 (0:disable)
- **Buttons**
Save: Click to Save changes.

3.3.1.9.2 Drop Down Weights

Web interface

To configure DBA Drop Down Weights in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose OLT DBA and click on the button DBA Drop Down Weights.

DBA Aggregate Shaper
DBA Priority Range
DBA Polling Rate
Broadcast SLA

DBA Drop Down Weights -- Slot 1

Level 0 (KBytes)

4

Level 1 (KBytes)

4

Level 0 : 0~256(default:4)

Level 1 : 0~256(default:4)

FK-OLT-20

DBA Aggregate Shaper
DBA Polling Rate
Broadcast SLA

DBA Drop Down Weights -- Slot 3

	EPON-1	EPON-2
	Ingress/DBA	
Level 1 (KBytes)	16	16
Level 2 (KBytes)	16	16
Level 3 (KBytes)	16	16
Level 4 (KBytes)	16	16
Level 5 (KBytes)	16	16
Level 6 (KBytes)	16	16
Level 7 (KBytes)	16	16
	Egress	
Level 1 (KBytes)	0	0
Level 2 (KBytes)	0	0
Level 3 (KBytes)	0	0
Level 4 (KBytes)	0	0
Level 5 (KBytes)	0	0
Level 6 (KBytes)	0	0
Level 7 (KBytes)	0	0

	NNI-1	NNI-2
	Egress	
Level 1 (KBytes)	0	0
Level 2 (KBytes)	0	0
Level 3 (KBytes)	0	0
Level 4 (KBytes)	0	0
Level 5 (KBytes)	0	0
Level 6 (KBytes)	0	0
Level 7 (KBytes)	0	0

Ingress/DBA -> Level 1~7 : 0~256(default:16)

Egress -> Level 1~7 : 0~256(default:0)

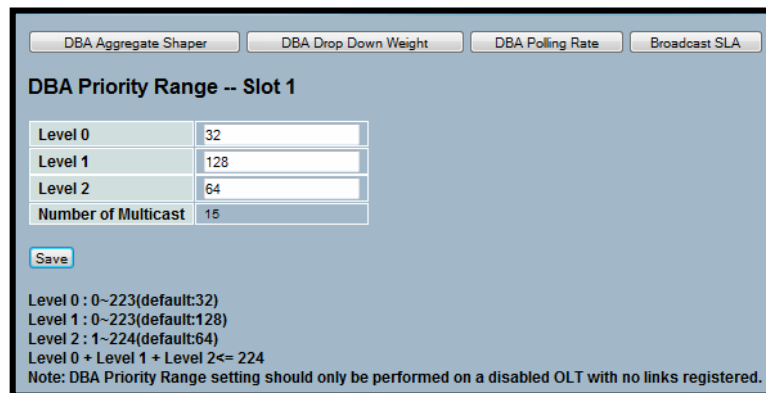
FK-OLT-20/2

3.3.1.9.3 Priority Range (only for FK-OLT-20)

Web interface

To configure the Pooling Rate in the web interface:

1. Click OLT Management, OLT VIEW , DBA and click on the button DBA Priority Range.



Level	Value
Level 0	32
Level 1	128
Level 2	64
Number of Multicast	15

Level 0 : 0~223(default:32)
Level 1 : 0~223(default:128)
Level 2 : 1~224(default:64)
Level 0 + Level 1 + Level 2 <= 224
Note: DBA Priority Range setting should only be performed on a disabled OLT with no links registered.

This command can set how many Logical Links in the priority Level. That set Priority Range should only be performed on a disable OLT with no links registered. The Priority Level illustrates as Table 3-2-6-1. The Level 0 and Level 1 can be set to 0, but Level 2 must more than 0. The sum of all Priority Range should add up to no more than 239.

Parameter description:

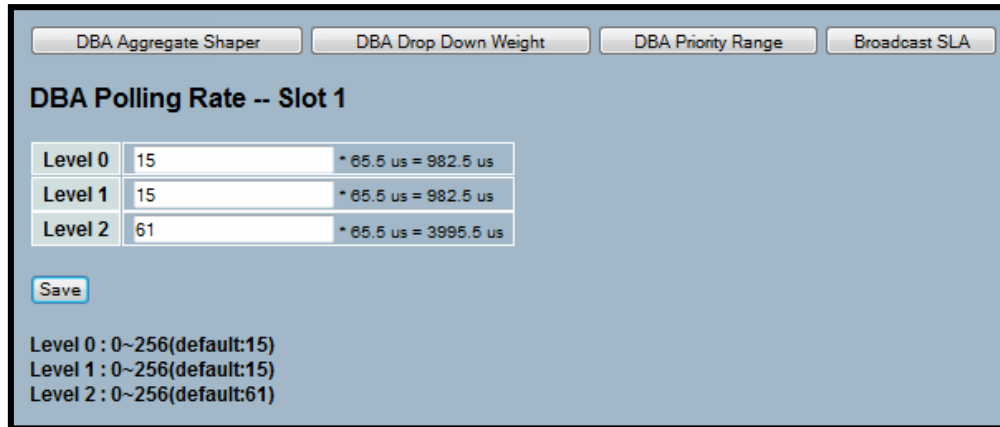
- Level 0: Range: 0~238
Default: 32
- Level 1: Range: 0~238
Default: 128
- Level 2: Range: 1~239
Default: 64

3.3.1.9.4 Polling Rate

Web interface

To configure the Pooling Rate in the web interface:

1. Click OLT Management, OLT VIEW , DBA and click on the button Polling Rate.

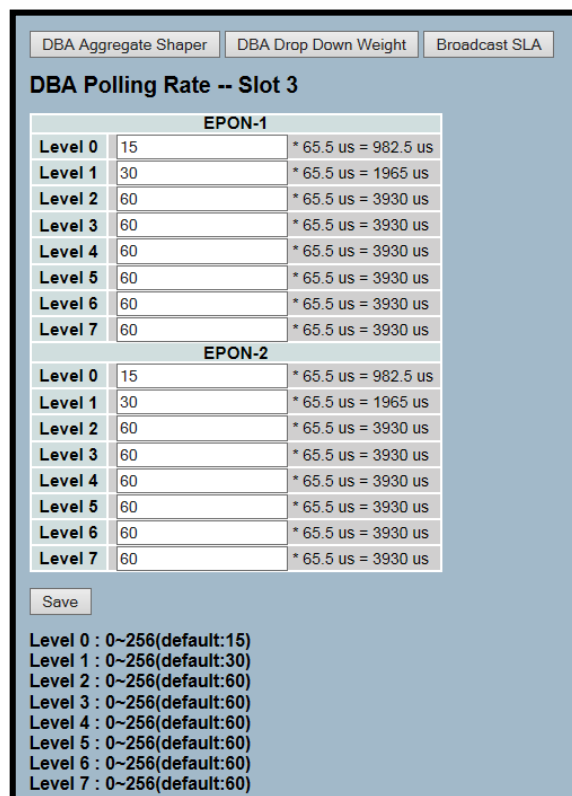


Level	Value	Calculation
Level 0	15	* 65.5 us = 982.5 us
Level 1	15	* 65.5 us = 982.5 us
Level 2	61	* 65.5 us = 3995.5 us

Save

Level 0 : 0~256(default:15)
Level 1 : 0~256(default:15)
Level 2 : 0~256(default:61)

FK-OLT-20



EPON-1		
Level 0	15	* 65.5 us = 982.5 us
Level 1	30	* 65.5 us = 1965 us
Level 2	60	* 65.5 us = 3930 us
Level 3	60	* 65.5 us = 3930 us
Level 4	60	* 65.5 us = 3930 us
Level 5	60	* 65.5 us = 3930 us
Level 6	60	* 65.5 us = 3930 us
Level 7	60	* 65.5 us = 3930 us

EPON-2		
Level 0	15	* 65.5 us = 982.5 us
Level 1	30	* 65.5 us = 1965 us
Level 2	60	* 65.5 us = 3930 us
Level 3	60	* 65.5 us = 3930 us
Level 4	60	* 65.5 us = 3930 us
Level 5	60	* 65.5 us = 3930 us
Level 6	60	* 65.5 us = 3930 us
Level 7	60	* 65.5 us = 3930 us

Save

Level 0 : 0~256(default:15)
Level 1 : 0~256(default:30)
Level 2 : 0~256(default:60)
Level 3 : 0~256(default:60)
Level 4 : 0~256(default:60)
Level 5 : 0~256(default:60)
Level 6 : 0~256(default:60)
Level 7 : 0~256(default:60)

FK-OLT-20/2

This command can set DBA Polling rates for the three levels in the FK-OLT-20 and for the eight levels in the FK-OLT-20/2. Registered links in Active scheduler levels must be provisioned with a non-zero polling rate. If the parameter is set as zero, that means scheduler level is disabled. This parameter can be set in increments of 65.5 usec.

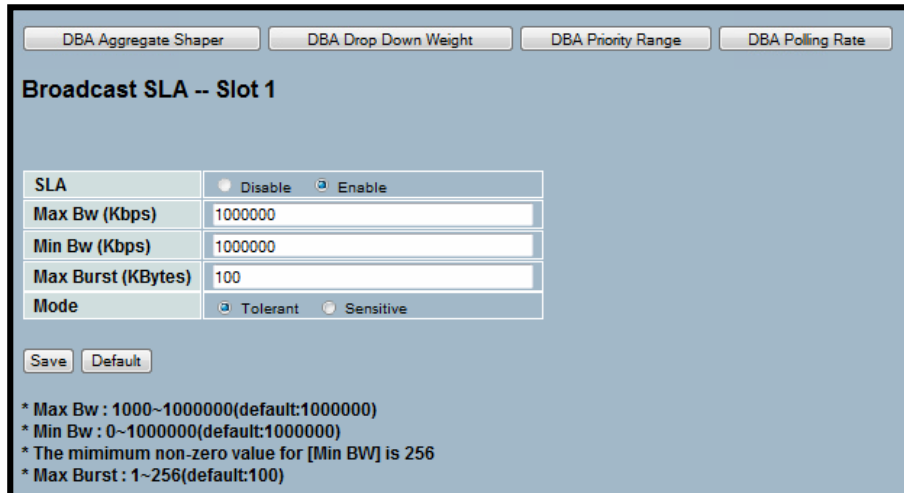
3.3.1.9.5 Broadcast SLA

Web interface

To configure the Broadcast SLA in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose OLT DBA and click on the button Broadcast SLA.

For FK-OLT-20:



SLA	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
Max Bw (Kbps)	1000000
Min Bw (Kbps)	1000000
Max Burst (KBytes)	100
Mode	<input checked="" type="radio"/> Tolerant <input type="radio"/> Sensitive

* Max Bw : 1000~1000000(default:1000000)
 * Min Bw : 0~1000000(default:1000000)
 * The minimum non-zero value for [Min BW] is 256
 * Max Burst : 1~256(default:100)

This parameter is SLA of using in Broadcast Link. This set DBA Priority Range should only be performed on a disabled OLT with no links registered.

Parameter description:

- Maximum Allowed Bandwidth (Max Bw)
Range: 256~1000000
Default: 1000000
- Minimum Guaranteed Bandwidth (Min Bw)
Range: 256~1000000
Default: 1000000
- Max Burst:
Range: 1~256
Default: 100

For the FK-OLT-20/2:

DBA Aggregate Shaper
DBA Drop Down Weight
DBA Polling Rate

Broadcast SLA -- Slot 3

Epon-1 <-> NNI-1

Port		Epon-1 <-> NNI-1	
Min Shaper	Disable	Max Shaper	
Min Bw (Kbps)	0	Max Bw (Kbps)	100000
Max Burst (KBytes)	0	Max Burst (KBytes)	100
Scheduler Lvl	0	Scheduler Lvl	2
Schedule Weight	0	Schedule Weight	2

Save

Min Shaper/Min Bw : 0, 256~1000,000, Max Shaper/Max Bw : 256~1000,000
Min Shaper/Max Burst : 1~ 256, Max Shaper/Max Burst : 1~ 256
Min Shaper/Schedule Weight : 2~ 32, Max Shaper/Schedule Weight : 2~ 32
*The minimum shaper scheduler level must be less than the maximum shaper scheduler level.
The Minimum and Maximum Scheduler Weight for the link SLA must be set to the same value. If they are set to different values, the firmware uses the smaller of the two values and ignores the larger value.

Parameter description:

- Min Bw :**
Range:0, 256~1000,000,
- Max Burst :**
Range:1~ 256
- Schedule Weight :**
Range:2~ 32
- Max Bw :**
Range:256~1000,000
- Max Burst :**
Range:1~ 256
- Schedule Weight :**
Range:2~ 32

3.3.1.10 IGMP Proxy

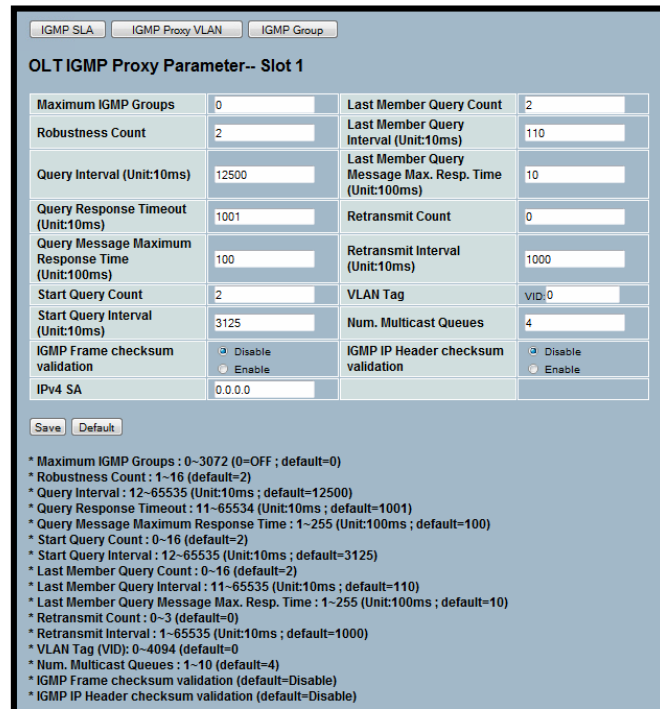
This session describes the implementation of IP multicast processing. The EPON system supports IGMP version 1 and IGMP version 2, efficient use of network bandwidth, and fast response time for channel changing. IGMP version 1 (IGMPv1) is described in RFC1112 ,and IGMP version 2 (IGMPv2) is described in RFC 2236.

3.3.1.10.1 IGMP Proxy

Web interface

To configure the OLT IGMP Parameter in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose IGMP Proxy.



IGMP SLA IGMP Proxy VLAN IGMP Group

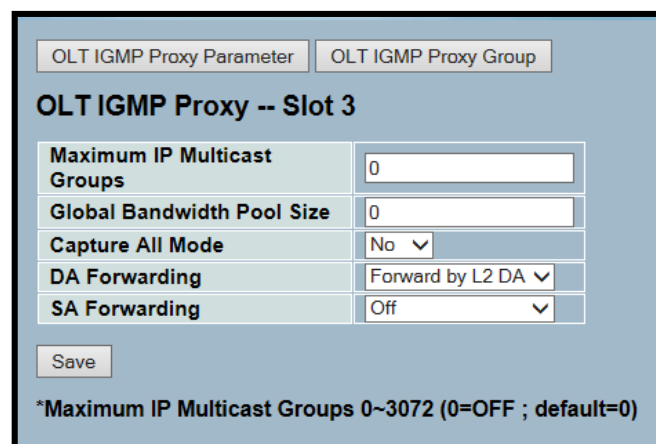
OLT IGMP Proxy Parameter-- Slot 1

Maximum IGMP Groups	0	Last Member Query Count	2
Robustness Count	2	Last Member Query Interval (Unit:10ms)	110
Query Interval (Unit:10ms)	12500	Last Member Query Message Max. Resp. Time (Unit:100ms)	10
Query Response Timeout (Unit:10ms)	1001	Retransmit Count	0
Query Message Maximum Response Time (Unit:100ms)	100	Retransmit Interval (Unit:10ms)	1000
Start Query Count	2	VLAN Tag	VID: 0
Start Query Interval (Unit:10ms)	3125	Num. Multicast Queues	4
IGMP Frame checksum validation	<input type="radio"/> Disable <input checked="" type="radio"/> Enable	IGMP IP Header checksum validation	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
IPv4 SA	0.0.0.0		

Save Default

* Maximum IGMP Groups : 0~3072 (0=OFF ; default=0)
 * Robustness Count : 1~16 (default=2)
 * Query Interval : 12~65535 (Unit:10ms ; default=12500)
 * Query Response Timeout : 11~65534 (Unit:10ms ; default=1001)
 * Query Message Maximum Response Time : 1~255 (Unit:100ms ; default=100)
 * Start Query Count : 0~16 (default=2)
 * Start Query Interval : 12~65535 (Unit:10ms ; default=3125)
 * Last Member Query Count : 0~16 (default=2)
 * Last Member Query Interval : 11~65535 (Unit:10ms ; default=110)
 * Last Member Query Message Max. Resp. Time : 1~255 (Unit:100ms ; default=10)
 * Retransmit Count : 0~3 (default=0)
 * Retransmit Interval : 1~65535 (Unit:10ms ; default=1000)
 * VLAN Tag (VID): 0~4094 (default=0)
 * Num. Multicast Queues : 1~10 (default=4)
 * IGMP Frame checksum validation (default=Disable)
 * IGMP IP Header checksum validation (default=Disable)

FK-OLT-20



OLT IGMP Proxy Parameter OLT IGMP Proxy Group

OLT IGMP Proxy -- Slot 3

Maximum IP Multicast Groups	0
Global Bandwidth Pool Size	0
Capture All Mode	No ▾
DA Forwarding	Forward by L2 DA ▾
SA Forwarding	Off ▾

Save

*Maximum IP Multicast Groups 0~3072 (0=OFF ; default=0)

OLT IGMP Proxy
OLT IGMP Proxy Group

OLT IGMP Proxy Parameter-- Slot 3

Maximum IGMP Groups	0	Last Member Query Count	0
Robustness Count	0	Last Member Query Interval (Unit:10ms)	0
Query Interval (Unit:10ms)	0	Last Member Query Message Max. Resp. Time (Unit:100ms)	0
Query Response Timeout (Unit:10ms)	0	Retransmit Count	0
Query Message Maximum Response Time (Unit:100ms)	0	Retransmit Interval (Unit:10ms)	0
Start Query Count	0	IPv4 SA	0.0.0.0
Start Query Interval (Unit:10ms)	0	IPv6 SA	0000:0000:0000:0000:0
IGMP Frame checksum validation	<input checked="" type="radio"/> Disable <input type="radio"/> Enable	IGMP IP Header checksum validation	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
Min Guaranteed Bandwidth (Kbps)	0	Max Bandwidth (Kbps)	0
Default Per-Channel Bandwidth (Kbps)	0		

Save
Default

FK-OLT-20/2

Parameter description:

- **Maximum IGMP Groups:** This parameter means how many IGMP Groups can support. If this parameter is 0, the IGMP Proxy is disabled. When IGMP is disabled, all IP Multicast Frames are forwarded by the OLT. If the current number of groups is equal to maximum IGMP Groups, no new groups will be added or forwarded by the OLT, and joins for new groups will be discarded.
Range: 0~4096 (0=OFF)
Default: 0
- **Robustness Count:** This parameter represents the number of IGMP General Queries. The Robustness Count may pass with no corresponding IGMP Report reply before a Group is removed.
Range: 1~16 (Unit: 10ms)
Default: 2
- **Query Interval:** This parameter is a time interval.
Range: 12~65535 (Unit: 10ms)
Default: 12500
- **Query Response Timeout:** This parameter is the OLT waits for IGMP Reports after sending a General IGMP Query. If the timer expires, and the Group does not receive a report, then the Robustness counter is decremented.
Range: 11~65534 (Unit: 10ms)
Default: 1001
- **Query Message Maximum Response Time:** This parameter is the actual value set in the Maximum Response Time field of IGMP General Query messages sent down stream by the OLT. The Query Message Maximum Response Time must lower than the Query Response Timeout.
Range: 1~255 (Unit: 100ms)
Default: 100
- **Start Query Count:** If IGMP is enabled or reset, the OLT uses Startup Queries initially. The Group memberships are quickly established after initialization.
Range: 0~16
Default: 2
- **Start Query Interval:** This interval must lower than the regular IGMP General Query Interval.
Range: 12~65535 (Unit: 10ms)
Default: 3125
- **Last Member Query Count:** This parameter is the number of IGMP Group Specific Queries sent when an IGMP Leave message is received for a specific Group. If this count is 0 and Last Member Query Interval expires, the multicast group is removed, multicast traffic forwarding for the group is stopped.
Range: 0~16
Default: 2

- **Last Member Query Interval:** This parameter is an interval, which IGMP Group Specific Queries are sent. The Last Member Query Interval higher than the Last Member Query Maximum Response Time.
Range: 11~65535(Unit: 10ms)
Default: 110
- **Last Member Query Message Maximum Response Time:** The Last Member Query Message Maximum Response time set in the Maximum Response Time filed of IGMP Group Specific Query messages sent downstream. This value must be lower than the Last Member Query Interval.
Range: 1~255 (Unit: 100ms)
Default: 10
- **Retransmit Count:** Range: 0~3
Default: 0
- **Retransmit Interval:** This is an interval, which represents the interval at which IGMP Reports (Joins) are retransmitted upstream.
Range: 1~65535 (Unit: 10ms)
Default: 1000
- **VLAN Tag (CoS):** This parameter is a fixed VLAN tag. It is added into IGMP Messages generated by the OLT and strip VLAN tags off of multicast traffic on a specific VLAN.
Range: 0~7
Default: 0
- **VLAN Tag (VID):** Range: 0~4094
Default: 0
- **Num. Multicast Queues:** If IGMP is enabled, the multicast data flow has Queues of "Num. of IGMP queues".
Range: 1~10
Default: 4
- **IGMP Frame checksum validation:** This parameter can set IGMP Frame checksum validation. It has two modes, Enable and Disable.
Default: Disable
- **IGMP IP Header checksum validation:** This parameter can set IGMP IP Header checksum validation. It has two modes, Enable and Disable.
Default: Disable
- **Min Guaranteed Bandwidth(Kbps)**
Range: 0~2000000
- **Max Bandwidth(Kbps)**
Range: 0~2000000
- **Default Per-Channel Bandwidth(Kbps)**
Range: 0~1000000
- **Maximum IP Multicast Groups:** This parameter means how many IGMP Groups can be supported. If this parameter is 0, the IGMP Proxy is disabled. When IGMP is disabled, all IP Multicast Frames are forwarded by the OLT. If the current number of groups is equal to the maximum IGMP Groups, no new groups will be added or forwarded by the OLT, and joins for new groups will be discarded.
Range: 0~3072 (0=OFF; default=0)
- **Global Bandwidth Pool Size:** This value applies to all Proxy Domain instances in the OLT. When it is set to zero, no groups can be joined on any proxy domain due to insufficient available bandwidth.
Range 0~2000000
- **Capture All Mode:** This bit applies to all Proxy Domains in the OLT. When it is set as Yes, the OLT Proxy software captures all IGMP protocol frames in both directions. When this bit is set as No, the OLT Proxy software only captures IGMP/MLD protocol frames that links to a provisioned proxy domain.

- **DA Forwarding /SA Forwarding:** Depending on the forwarding option and the group addresses in use, the maximum number of groups can be one fewer (4095). If groups are only forwarded by L2 DA, then the limit is always 4096. Other forwarding options can hit the 4095 limit instead.

- **Buttons**

Save: Click to Save changes.

Default: Click to go back to the parameters default configuration.

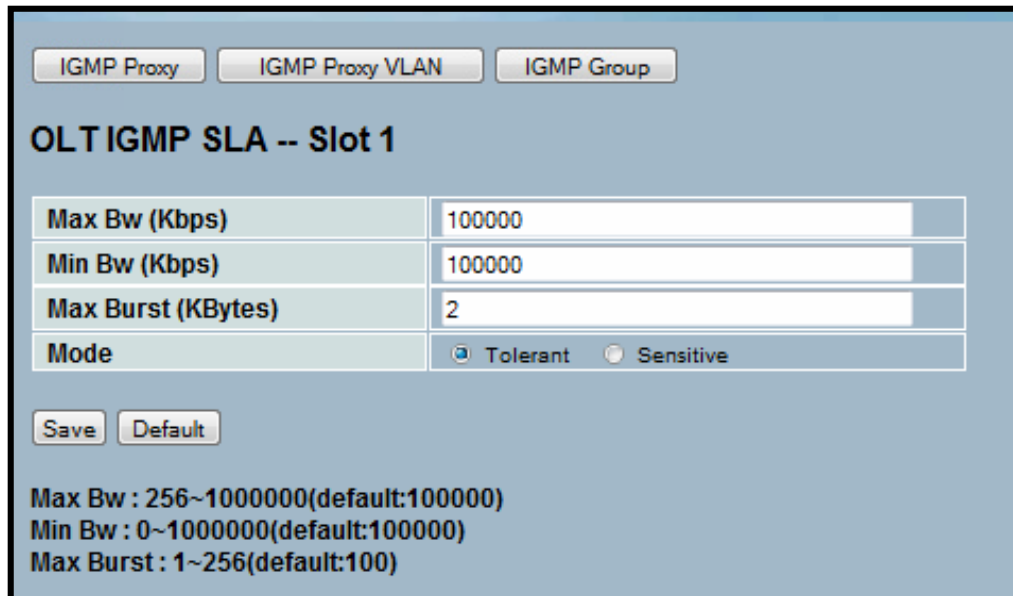
3.3.1.11 IGMP SLA (only for FK-OLT-20)

This command can control multicast SLA. It is in effect when the IGMP Proxy is enabled. This command has four parameters, Maximum Allowed Bandwidth, Minimum Guaranteed Bandwidth, Max Burst, and delay sensitive (mode). If the delay sensitive is "Sensitive", but the Min Bw and Max Bw are not the same, this setting is Invalid.

Web interface

To configure IGMP VLAN in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose IGMP Proxy and click on the button IGMP SLA.



IGMP Proxy IGMP Proxy VLAN IGMP Group

OLT IGMP SLA -- Slot 1

Max Bw (Kbps)	100000
Min Bw (Kbps)	100000
Max Burst (KBytes)	2
Mode	<input checked="" type="radio"/> Tolerant <input type="radio"/> Sensitive

Save Default

Max Bw : 256~1000000(default:100000)
Min Bw : 0~1000000(default:100000)
Max Burst : 1~256(default:100)

Parameter description:

- **Maximum Allowed Bandwidth (Max Bw)**
Range: 256~1000000
Default: 100000
- **Minimum Guaranteed Bandwidth (Min Bw)**
Range: 0~1000000
Default: 100000
- **Max Burst**
Range: 1~256
Default: 100
- **Delay sensitive (Mode):** This parameter has two modes, Sensitive and Tolerant.

3.3.1.11.1 IGMP Proxy VLAN (only for FK-OLT-20)

This command can configure the VID and bandwidth for the IPMC. There are 8 groups can be set. The Network VLAN Tag is used on the frame of uplink side on the OLT. The EPON VLAN Tag is used for the downstream of the OLT. Thus the command can add tag, strip tag, retain tag, or replace tag. Every Group must set Min Bandwidth, Max Bandwidth, and Default Per-Channel Bandwidth.

Web interface

To configure IGMP Proxy VLAN in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose IGMP Proxy and click on the button IGMP Proxy VLAN.

IGMP SLA
OLT IGMP Proxy
IGMP Group

OLT IGMP Vlan Provisioning -- Slot 1

FCFS Pool Size (Kbps) (0~1000000)

No	Network VLAN Tag		EPON VLAN Tag		Min Bandwidth	Max Bandwidth	Default Per-Channel Bandwidth	Add
	CoS	VID	CoS	VID				
1	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
2	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
3	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
4	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
5	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
6	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
7	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
8	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>

* CoS : 0~7 (default:0)

* VID : 0~4094 (default:0)

* Min Bandwidth : 0~1000000 (default:0)

It is the guaranteed CAC bandwidth reserved for a VLAN.

* Max Bandwidth : 0~1000000 (default:1000000)

* Default Per-Channel Bandwidth : 0~1000000 (default:0)

* The total amount of Minimum Bandwidth for each VLAN plus FCFS pool size can not exceed 1000000(1G).

* IGMP report(join) for a new group of a particular VLAN will be rejected if any of the following conditions occurs :

(1)the amount of channel bandwidth for joined groups and the new group exceeds Maximum Bandwidth for that VLAN.

(2)the channel bandwidth for a new group is greater than the sum of the following two bandwidth values:

[A] CAC bandwidth remained in that VLAN

[B] unused bandwidth in FCFS

where [A]=Min Bandwidth - currently consumed bandwidth;

if (Min Bandwidth - currently consumed bandwidth)<0 then [A]=0.

(3)there is not any FIFO(queue) that has enough remaining SLA bandwidth for the new group.

Parameter description:

- **Network VLAN TAG / EPON VLAN TAG - Cos:** Range: 0~7 / Default: 0
- **Network VLAN TAG / EPON VLAN TAG - VID:** Range: 0~4094 / Default: 0
- **Min Bandwidth:** Range: 0~1000000 / Default: 0
- **Max Bandwidth:** Range: 0~1000000 / Default: 1000000
- **Default Per-Channel Bandwidth:** This parameter means per channel give a default bandwidth. Range: 0~1000000 Default: 0

3.3.1.11.2 IGMP Group

This command can show all IGMP group status for each VLAN or all VLAN. The List represents the Group IP of Group VLAN, and how many bandwidths it has for the FK-OLT-20. For the FK-OLT-20/2, it shows the address of the groups joined.

IGMP SLA
IGMP Proxy
IGMP Proxy VLAN

OLT IGMP Group -- Slot 1

Group VID
☒ ALL
☐ VID (0~4094)

No	Group VLAN	Group IP	Forwarding FIFO	FIFO Bandwidth

The sum of IGMP Group number and OLT Dynamic Mac Table number are about 3839.

FK-OLT-20

OLT IGMP Proxy
OLT IGMP Proxy Parameter

OLT IGMP Proxy Group-- Slot 3

No	Group ID	Join

FK-OLT-20/2

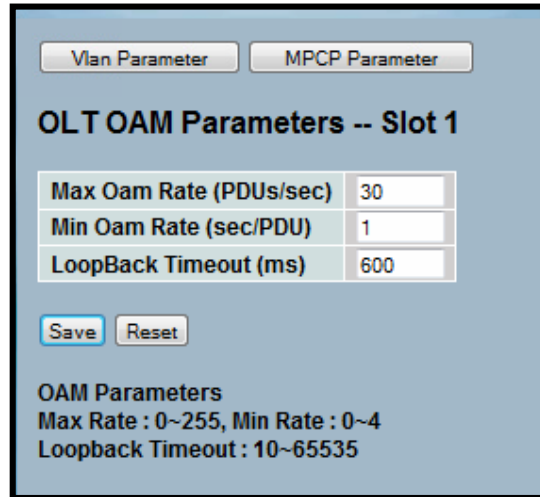
3.3.1.12 Network Parameter

3.3.1.12.1 OAM Parameters

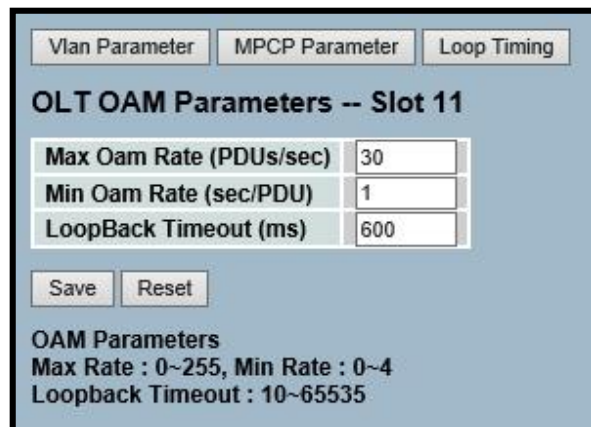
Web interface

To configure the OAM Parameters in the web interface:

1. Click OLT Management, OLT VIEW and on the OLT Function choose Network Parameters/OLT Network Parameters and press the button OAM Parameter.



FK-OLT-20



FK-OLT-20/2

Parameter description:

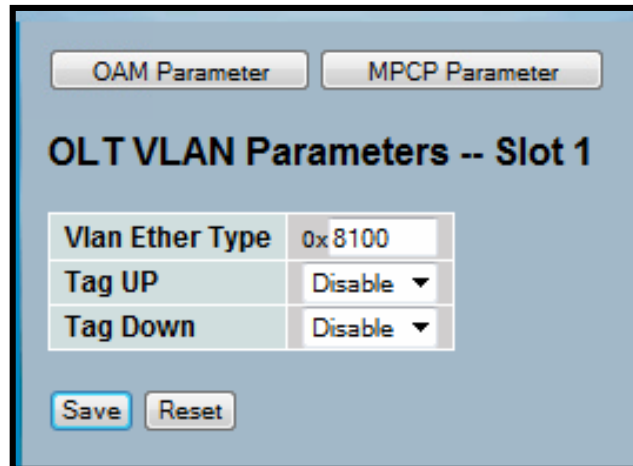
- **Max OAM Rate:** Total OAM PDU transmission per second per logical link is limited to the Max OAM Rate specified. A value of zero disables the limit and allows an unlimited number of OAM frames on a logical link.
Default: 30 (PDUs/sec)
- **Min Rate:** One OAM Information PDU are generated at Min OAM Rate, if no other OAM PDU is transmitted for the defined length of time. OAM link failure occurs when five minimum OAM intervals have passed with no OAM message received.
Default: 1 sec
- **Loopback Timeout:** The loopback failsafe timeout value. A port or a logical link on an ONU which is commanded to get into loopback mode will remain in this state until receiving the OAM "Loopback Disable" command, or until this timer expires.
Default: 600
- **Buttons**
Save: Click to Save changes.
Reset: Click to undo any changes made locally and revert to previously saved values

3.3.1.12.2 VLAN Parameters

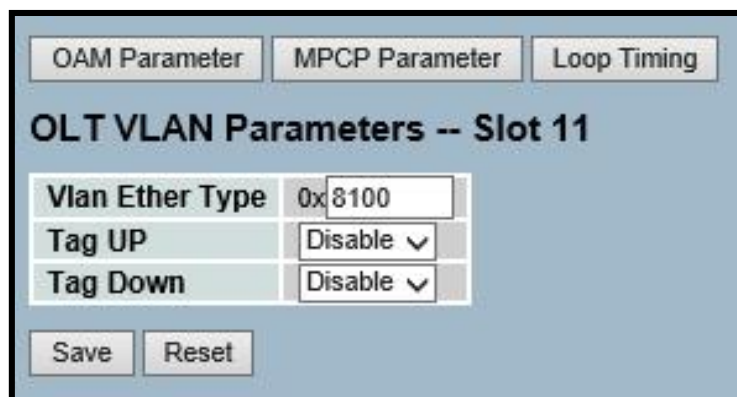
Web interface

To configure the VLAN Parameters in the web interface:

1. Click OLT Management, OLT VIEW and on the OLT Function choose Network Parameters/OLT Network Parameters and press the button VLAN Parameter.



FK-OLT-20



FK-OLT-20/2

Parameter description:

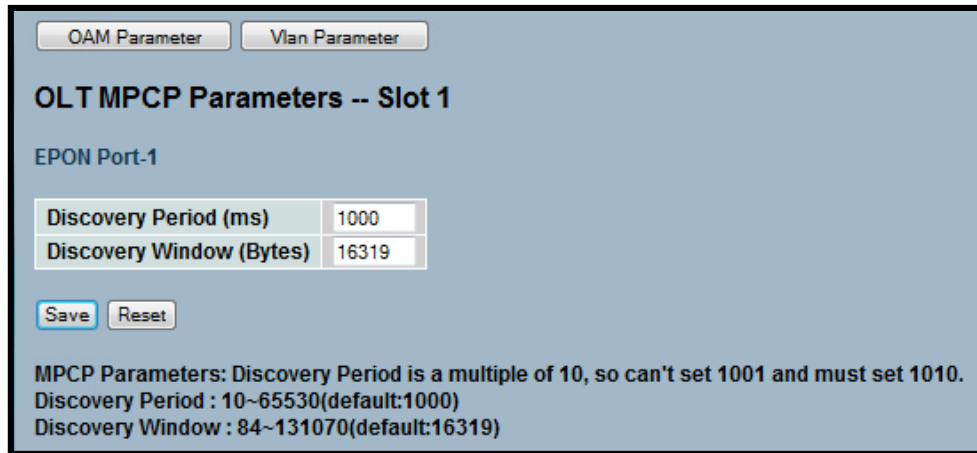
- **Vlan Ether Type:** The firmware of the OLT uses the default Ethertype of 0x8100 to identify frames with VLAN tags. For the interoperability in some special application using VLAN, an additional Ethertype to identify VLAN frames may be defined here.
- **Tag UP :** Use the VLAN Ether Type Specified above to tag upstream
Default:[Disable]
- **Tag Down:** Use the VLAN Ether Type Specified above to tag downstream
Default:[Disable]
- **Buttons**
Save: Click to Save changes.
Reset: Click to undo any changes made locally and revert to previously saved values.

3.3.1.12.3 MPCP Parameters

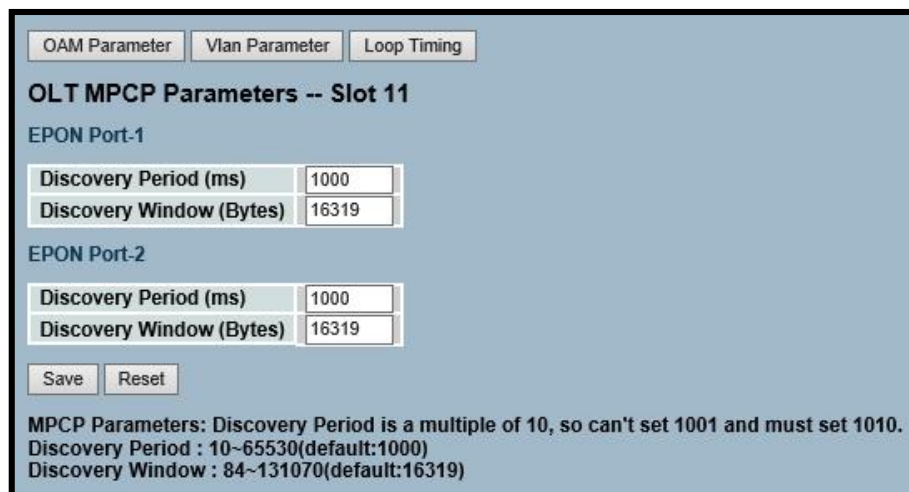
Web interface

To configure the MPCP Parameters in the web interface:

1. Click OLT Management, OLT VIEW and on the OLT Function choose Network Parameters/OLT Network Parameters and press the button MPCP Parameter.



FK-OLT-20



FK-OLT-20/2

Parameter description:

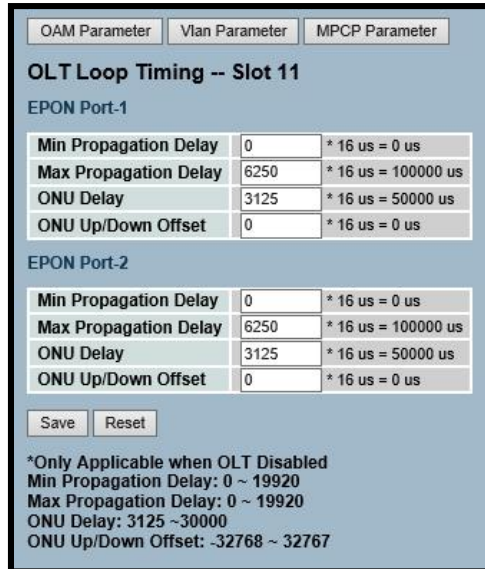
- **Discovery Period (ms):** The period of time for the OLT to generate a discovery gate.
Default:1000 (=1 Second)
- **Discovery Window (Bytes):** The size in byte of the MPCP discovery window in a EPON system
Default: 16319
- **Buttons**
Save: Click to Save changes.
Reset: Click to undo any changes made locally and revert to previously saved values.

3.3.1.12.4 Loop Timing (only for the FK-OLT-20/2)

Web interface

To configure the Loop Timing parameters for the FK-OLT-20/2 in the web interface:

1. Click OLT Management, OLT VIEW and on the OLT Function choose Network Parameters/OLT Network Parameters and press the button Loop Timing.



OAM Parameter Vlan Parameter MPCP Parameter

OLT Loop Timing -- Slot 11

EPON Port-1

Min Propagation Delay	0	* 16 us = 0 us
Max Propagation Delay	6250	* 16 us = 100000 us
ONU Delay	3125	* 16 us = 50000 us
ONU Up/Down Offset	0	* 16 us = 0 us

EPON Port-2

Min Propagation Delay	0	* 16 us = 0 us
Max Propagation Delay	6250	* 16 us = 100000 us
ONU Delay	3125	* 16 us = 50000 us
ONU Up/Down Offset	0	* 16 us = 0 us

Save Reset

*Only Applicable when OLT Disabled
 Min Propagation Delay: 0 ~ 19920
 Max Propagation Delay: 0 ~ 19920
 ONU Delay: 3125 ~ 30000
 ONU Up/Down Offset: -32768 ~ 32767

Parameter description:

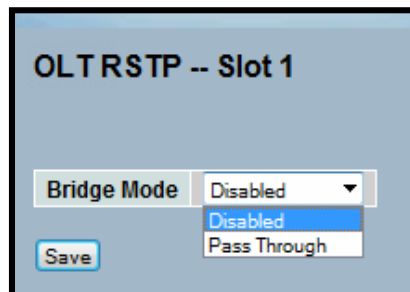
- **Min Propagation Delay:** the minimum delay generated by the transmission on the fiber.
Default: 0 - means there's 0 km of fiber.
- **Max Propagation Delay :** the maximum delay generated by the transmission on the fiber.
Default: 6250 - means there's 20 km of fiber between the OLT and the ONU.
- **ONU Delay:** the period that the ONU takes to process the data sent by the OLT and respond.
- **Buttons**
Save: Click to Save changes.
Reset: Click to undo any changes made locally and revert to previously saved values.

3.3.1.13 OLT RSTP (only for FK-OLT-20)

Web interface

To configure the OLT RSTP for the FK-OLT-20 in the web interface:

1. Click OLT Management, OLT VIEW and on the OLT Function choose OLT RSTP.



OLT RSTP -- Slot 1

Bridge Mode Disabled

Save

Parameter description:

- **Bridge Mode :**
 Disabled: Block RSTP packets
 Pass Through : Allow RSTP packets
- **Buttons**
Save: Click to Save changes.

3.3.1.14 Dynamic Table

Display the automatically learned MAC addresses for the selected Logical Link.

Clear Button can be used to clear the whole dynamic MAC table for all Logical Links.

Dynamic entries will be automatically removed if ANY of the following events should occur:

1. The link's SLAs are disabled or enabled
2. The bridging mode is changed
3. The link departs the network
4. Upstream SLA is modified such that link's priority changes (priority change requires a new link index to be registered for that logical link).

Web interface

To check the OLT Dynamic Table in the web interface:

1. Click OLT Management, OLT VIEW and on the OLT Function choose Dynamic Table/OLT Dynamic Table.



OLT Dynamic Table -- Slot 3

Refresh Clear All Clear Link

Link

No.	Llid	Learned Mac
1	b8-26-d4-02-4f-c0	00-10-94-00-00-04
2	b8-26-d4-02-4f-c8	00-10-94-00-00-03

Previous Next

Parameter description:

- **Link** : box to choose the Llid address
- **Llid** : logical link address.
- **Learned Mac**: show the MAC address learned by the selected Llid.
- **Buttons**
 - Previous** : Go to the previous page.
 - Next**: Go to the next page.
 - Refresh**: update the page
 - Clear All**: clear the entries for all the logical links.
 - Clear Link**: clear the entries for the selected logical link.

3.3.1.15 Operations

3.3.1.15.1 Enable

Web interface

To Enable the OLT in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose Operations/OLT Operations and press the button Enable OLT.



Parameter description:

- **Buttons**
Yes: enables the OLT.

3.3.1.15.2 Disable

Web interface

To Disable the OLT in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose Operations/OLT Operations and press the button Disable OLT.



Parameter description:

- **Buttons**
Yes: disables the OLT.

3.3.1.15.3 Reset

Web interface

To Reset the OLT in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose Operations/OLT Operations and press the button Reset OLT.



Parameter description:

- **Buttons**
Save: Resets the OLT.

3.3.1.15.4 Restore

Web interface

To restore the OLT in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose Operations/OLT Operations and press the button Restore OLT.



Parameter description:

- **Buttons**
Save: Restores the OLT.

3.3.1.15.5 Export

Web interface

To Export the OLT Configuration in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose Operations/OLT Operations and press the button Export OLT Config.



Parameter description:

- **Buttons**
Save Configuration: opens a window to the user, so that he can chooses where the configuration file will be saved.

3.3.1.15.6 Import

Web interface

To Import the OLT configuration in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose Operations/OLT Operations and press the button Import OLT Config.



Parameter description:

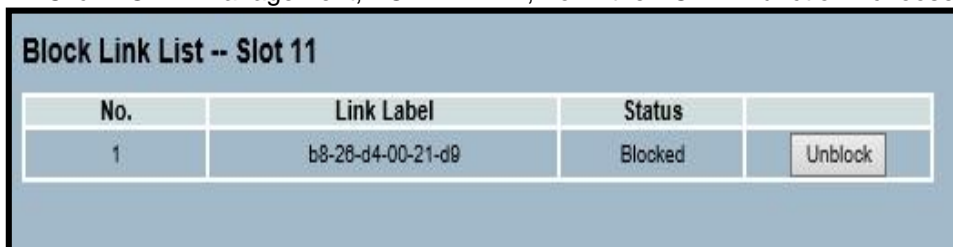
- **Buttons**
Procurar: a window will be open so that the user can inform the file that will be used.
Import: the OLT will import the configuration file from the path informed.

3.3.1.16 Block Link List

Web interface

To check the Block Link List in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose Block Link List.



No.	Link Label	Status	
1	b8-28-d4-00-21-d9	Blocked	Unblock

Parameter description:

- **Link Label:** indicate the MAC address of the logical link.
- **Status:** indicate the status of the link.
- **Buttons**
Unblock: click to unblock the link.

3.3.1.17 All Known Links Provision

3.3.1.17.1 in OLT

Web interface

To check all the links in the OLT in the web interface:

1. Click OLT Management, OLT VIEW and on the OLT Function choose All Known Link Prov./ OLT All Known Link Prov.

All Known Links Provision in OLT -- Slot 1

No.	ONU	Link Label	Status	Bridge	Vlan	Cos
1	*	b8-26-d4-01-90-50	Registered	Simple Bridged		
2		b8-26-d4-01-90-51	Registered	Simple Bridged		

Refresh Clear

FK-OLT-20

Parameter description:

- **ONU:** show the ONU status. * means that the ONUs is not registered.
- **Link Label:** show the logical link MAC address.
- **Status:** show the status of the link.
Registered: the link is up.
Blank: Link down.
- **Bridge :** show the bridge mode configured for the Iid.
- **Vlan :** show the VLAN ID.
- **Buttons**
Refresh: updates the list.
Clear: delete the selected links.

In Host Memory Switch Onu

All Known Links Provision in OLT -- Slot 11

No.	Function	Link Label	Bridge	Source Epon	Dest. NNI	Vlan
1		b8-26-d4-00-21-d8	Simple Bridged	EPON-1	NNI-1	0
2		b8-26-d4-00-21-d9	Simple Bridged	EPON-1	NNI-1	0

Clear

FK-OLT-20/2

Parameter description:

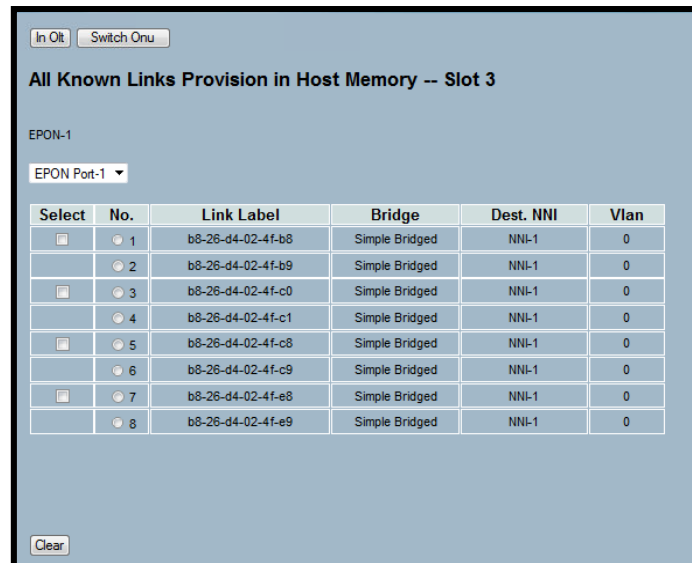
- **Function:** allow the user to configure the logical link from this menu. The following options are available:
SLA
Multicast SLA
Bridge Mode
Block Link
Unblock Link
- **Link Label:** show the logical link MAC address.
- **Bridge :** show the bridge mode configured for the Iid.
- **Source Epon:** show the PON port the link belongs.
- **Dest. NNI:** show the destination uplink port the Iid will use.
- **Vlan:** show the VLAN ID.
- **Buttons**
Clear:delete the selected links.
In Host Memory: show the links present in each PON port.
Switch ONU: allows changing an ONU from PON port.

3.3.1.17.2 in Host Memory

Web interface

To check the In host Memory for the FK-OLT-20/2 in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose OLT All Known Link Prov and press the button In Host Memory.



All Known Links Provision in Host Memory -- Slot 3

EPON-1

EPON Port-1

Select	No.	Link Label	Bridge	Dest. NNI	Vlan
<input type="checkbox"/>	1	b8-26-d4-02-4f-b8	Simple Bridged	NNI-1	0
<input type="checkbox"/>	2	b8-26-d4-02-4f-b9	Simple Bridged	NNI-1	0
<input type="checkbox"/>	3	b8-26-d4-02-4f-c0	Simple Bridged	NNI-1	0
<input type="checkbox"/>	4	b8-26-d4-02-4f-c1	Simple Bridged	NNI-1	0
<input type="checkbox"/>	5	b8-26-d4-02-4f-c8	Simple Bridged	NNI-1	0
<input type="checkbox"/>	6	b8-26-d4-02-4f-c9	Simple Bridged	NNI-1	0
<input type="checkbox"/>	7	b8-26-d4-02-4f-e8	Simple Bridged	NNI-1	0
<input type="checkbox"/>	8	b8-26-d4-02-4f-e9	Simple Bridged	NNI-1	0

Clear

OLT Bridge mode setting is volatile, When OLT reboot, All Known Links Provision in OLT will be set as Host flash setting.

All Known Links Provision in Host Memory had better save to flash.

Double click Select title field will select all entries. click Select title field will unselect all entries.

Parameter description:

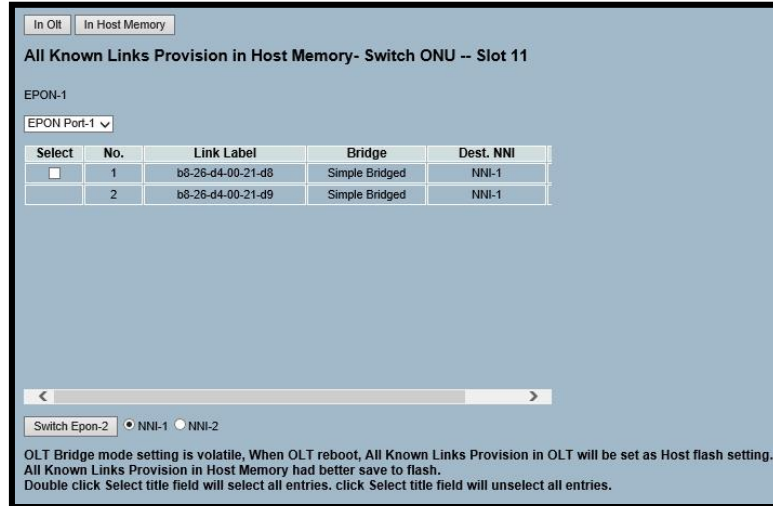
- **Link Label:** show the logical link MAC address.
- **Bridge:** show the bridge mode configured for the Iid.
- **Dest. NNI:** show the destination uplink port the Iid will use.
- **Vlan:** show the VLAN ID.
- **Buttons**
Clear: delete the selected links.

3.3.1.17.3 Switch ONU

Web interface

To Switch a ONU from EPON port for the FK-OLT-20/2 in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose OLT All Known Link Prov and press the button Switch ONU.



In OLT In Host Memory

All Known Links Provision in Host Memory- Switch ONU -- Slot 11

EPON-1

EPON Port-1 ▾

Select	No.	Link Label	Bridge	Dest. NNI
<input type="checkbox"/>	1	b8-26-d4-00-21-d8	Simple Bridged	NNI-1
<input type="checkbox"/>	2	b8-26-d4-00-21-d9	Simple Bridged	NNI-1

Switch Epon-2 ☒ NNI-1 ☐ NNI-2

OLT Bridge mode setting is volatile, When OLT reboot, All Known Links Provision in OLT will be set as Host flash setting. All Known Links Provision in Host Memory had better save to flash. Double click Select title field will select all entries. click Select title field will unselect all entries.

Parameter description:

- **Link Label:** show the logical link MAC address.
 - **Bridge:** show the bridge mode configured for the lld.
 - **Dest. NNI:** show the destination uplink port the lld will use.
 - **Button:**
 - Switch Epon-2:** the selected ONU connected to the EPON 1 will be changed to the EPON
2. It's possible to change the Dest.NNI port or keep the same.

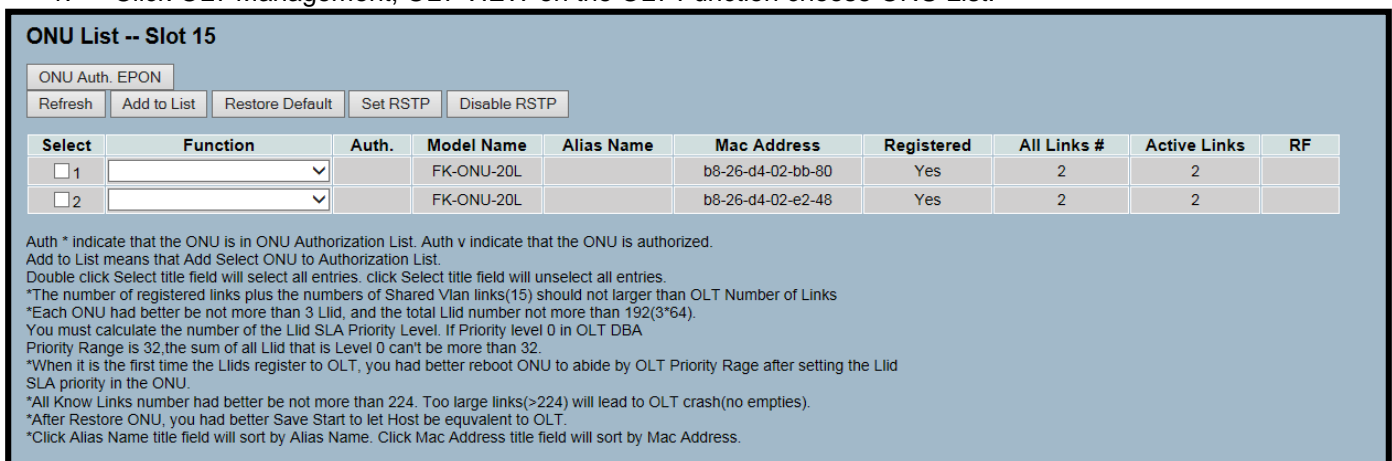
Note: If the list of ONUs connected to the EPON 2 is showed the button will be Switch EPON-1.

3.3.1.18 ONU List

Web interface

To check the ONU List in the web interface:

1. Click OLT Management, OLT VIEW on the OLT Function choose ONU List.



ONU List -- Slot 15

ONU Auth. EPON

Refresh Add to List Restore Default Set RSTP Disable RSTP

Select	Function	Auth.	Model Name	Alias Name	Mac Address	Registered	All Links #	Active Links	RF
<input type="checkbox"/> 1	▾		FK-ONU-20L		b8-26-d4-02-bb-80	Yes	2	2	
<input type="checkbox"/> 2	▾		FK-ONU-20L		b8-26-d4-02-e2-48	Yes	2	2	

Auth * indicate that the ONU is in ONU Authorization List. Auth v indicate that the ONU is authorized.
Add to List means that Add Select ONU to Authorization List.
Double click Select title field will select all entries. click Select title field will unselect all entries.
*The number of registered links plus the numbers of Shared Vlan links(15) should not larger than OLT Number of Links
*Each ONU had better be not more than 3 Lld, and the total Lld number not more than 192(3*64).
You must calculate the number of the Lld SLA Priority Level. If Priority level 0 in OLT DBA
Priority Range is 32,the sum of all Lld that is Level 0 can't be more than 32.
*When it is the first time the Llds register to OLT, you had better reboot ONU to abide by OLT Priority Range after setting the Lld SLA priority in the ONU.
*All Know Links number had better be not more than 224. Too large links(>224) will lead to OLT crash(no empties).
*After Restore ONU, you had better Save Start to let Host be equivalent to OLT.
*Click Alias Name title field will sort by Alias Name. Click Mac Address title field will sort by Mac Address.

FK-OLT-20

ONU List -- Slot 11

ONU List EPON-2

ONU Auth. EPON-1

ONU Auth. EPON-2

IONU Digital-IO EPON-1

IONU Digital-IO EPON-2

EPON-1

Refresh

Add to List

Restore Default

Set RSTP

Disable RSTP

Select	Function	Auth.	Model Name	Alias Name	Mac Address	Registered	All Links #	Active Links	Power Save	Green	RF
<input type="checkbox"/> 1	<div></div>		FK-ONU-20L		b8-26-d4-02-bb-80	Yes	2	2	N	N	
<input type="checkbox"/> 2	<div></div>		FK-ONU-20L		b8-26-d4-02-e2-48	Yes	2	2	N	N	

Auth * indicate that the ONU is in ONU Authorization List. Auth v indicate that the ONU is authorized.

Add to List means that Add Select ONU to Authorization List.

Double click Select title field will select all entries. click Select title field will unselect all entries.

*The number of registered links plus the numbers of Shared Vlan links(15) should not larger than OLT Number of Links

*Each ONU had better be not more than 3 Llid, and the total Llid number not more than 192(3*64).

*All Know Links number had better be not more than 224. Too large links(>224) will lead to OLT crash(no empties).

*After Restore ONU, you had better Save Start to let Host be equivalent to OLT.

*Click Alias Name title field will sort by Alias Name. Click Mac Address title field will sort by Mac Address.

FK-OLT-20/2

Parameter description:

- **Function:**show the menus available to configure the ONU.
- **Auth.:** inform if the ONU is authorized or not. If yes the a "v" will be showed.
- **Alias Name :** show the Alias name configured for the ONU.
 - Note: Click Alias Name title field will sort by Alias Name.
- **Model Name:**show the model name of the ONU.
- **Mac Address:** show the MAC Address of the ONU.
 - Note:Click Mac Address title field will sort by Mac Address.
- **Registered:** inform if the ONU is on line.
- **All Links #:** inform the number of logical links.
- **Active Links:** show the number of active links.
- **Power Save:** inform if the power save function is enabled.(only for FK-OLT-20/2)
- **Green:** inform if the green pon function is enabled. (only for FK-OLT-20/2)
- **Buttons**
 - Refresh:** Click to refresh the page.
 - Add to List:** click to add the selected ONU to the authorization list.
 - Restore Default:** click to restore to default the selected ONUs.
 - Set RSTP:** click to enable the RSTP Pass-through function for the selected ONUs.
 - Disable RSTP:** click to disable the RSTP Pass-through function for the selected ONUs.
 - ONU List EPON-2:** Click to show the ONU List of EPON-2.(only for FK-OLT-20/2).
 - ONU Auth. EPON:** Click to show the Authorization List.
 - IONU Digital-IO EPON-1/EPON-2:** Click to show the list of IONU that have the digital signal control function. (only for FK-OLT-20/2).

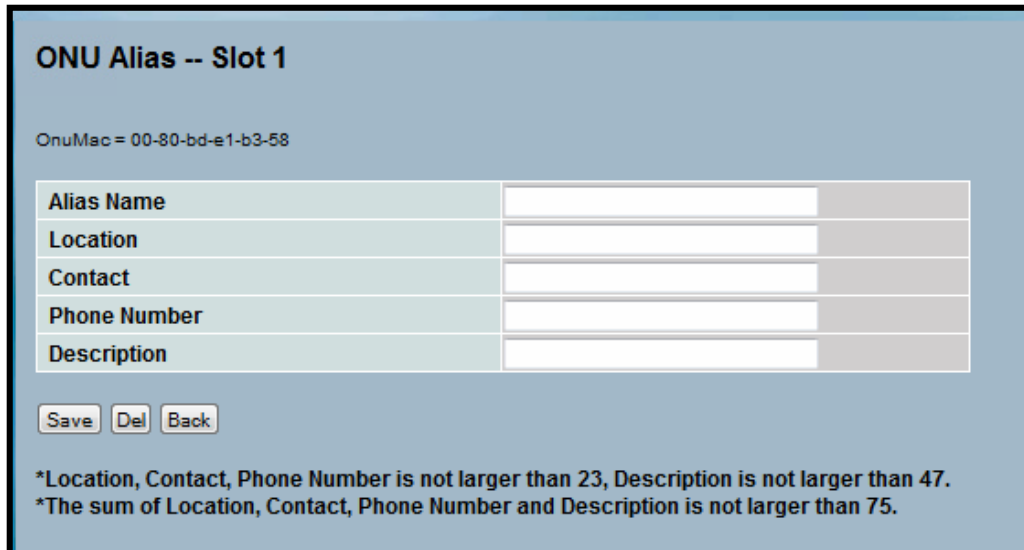
3.3.2 ONU Configuration

3.3.2.1 Alias

Web interface

To configure the Alias name in the web interface:

Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose Alias Name.



ONU Alias -- Slot 1

OnuMac = 00-80-bd-e1-b3-58

Alias Name	<input type="text"/>	
Location	<input type="text"/>	
Contact	<input type="text"/>	
Phone Number	<input type="text"/>	
Description	<input type="text"/>	

*Location, Contact, Phone Number is not larger than 23, Description is not larger than 47.
*The sum of Location, Contact, Phone Number and Description is not larger than 75.

Parameter description:

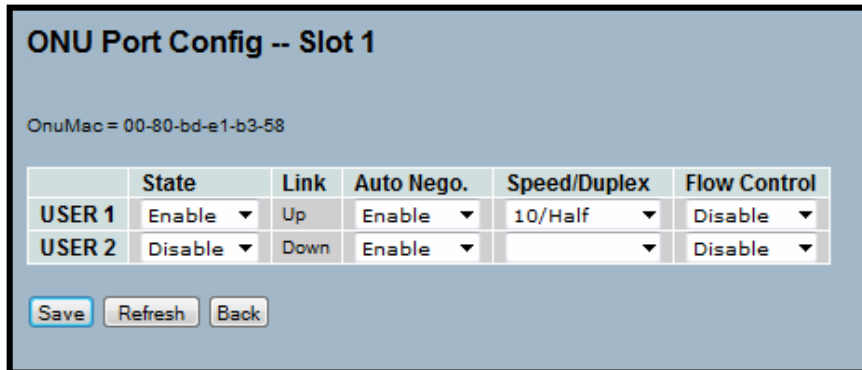
- **Alias Name:** name to identify the ONU.
- **Location :** the location of the ONU.
Note: not larger than 23
- **Contact:** contact of the responsible for the ONU.
Note: not larger than 23.
- **Phone Number:** phone number of the responsible for the ONU.
Note: not larger than 23
- **Description:** description of the ONU.
Note: not larger than 47
- **Buttons**
 - Save:** Click to Save changes.
 - Del :** Click to delete the configuration.
 - Back:** Click to go back to the ONU list.

3.3.2.2 Port Config

Web interface

To configure the ONU Port Config in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose Port Config.



	State	Link	Auto Nego.	Speed/Duplex	Flow Control
USER 1	Enable ▼	Up	Enable ▼	10/Half ▼	Disable ▼
USER 2	Disable ▼	Down	Enable ▼	▼	Disable ▼

Save Refresh Back

Parameter description:

- **State** : show the status of the ONU UNI port.
- **Link** : show the status of the link.
- **Auto Nego** : enable/disable the auto negotiation function.
- **Speed/Duplex** : show the current speed of the port if the Auto Negotiation function is enabled; show the configured speed for the port if the Auto negotiation function is disabled.
- **Flow Control**: enable/disable the flow control function.
- **Buttons**
 - Save**: Click to Save changes.
 - Refresh**: Click to refresh the page.
 - Back**: Go back to the ONU list page.

3.3.2.3 Port Statistics

Web interface

To check the ONU Port Statistics in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose ONU Statistics.

On this Menu it's possible to check the statistics for the EPON Port, UNI Port 1(GbE) and UNI Port 2 (FE) on both directions upstream (Transmit) and downstream (Receive).

ONU Port Statistics	
Slot 1 00-80-bd-e1-b3-58	
EPON Port <input type="button" value="v"/> Upstream <input type="button" value="v"/>	
Statistic	Count
Octets transferred	24000
Total Frames transferred	200
Unicast Frames transferred	200
Broadcast Frames transferred	0
Multicast Frames transferred	2
CRC-32 Errors	0
Undersize Frames	-
Oversize Frames	-
Collisions	-
64 Octet Frames	-
65-127 Octet Frames	-
128-255 Octet Frames	-
256-511 Octet Frames	-
512-1023 Octet Frames	-
1024-1518 Octet Frames	-
1519+Octet Frames	-
Frames dropped(queue overflow)	0
Octets dropped(queue overflow)	0
Octets delayed(units of 100 us)	0
Octets granted	0
CRC-8(Preamble) errors	0
Pause Frames	-

FK-OLT-20

ONU Port Statistics

Slot 11
EPON-1
b8-26-d4-02-bb-80

EPON Port ▼ Transmit ▼

Name	Value
Bytes	256
Frames	0
Unicast Frames	0
Multicast Frames	4
Broadcast Frames	0
64-Byte Frames	4
65-127 Byte Frames	0
128-255 Byte Frames	0
256-511 Byte Frames	0
512-1023 Byte Frames	0
1024-1518 Byte Frames	0
Greater than 1518 Byte Frames	0
Byte Dropped	0
Frames Dropped	0
Bytes Delayed	0
Maximum Delay	0
Delay Threshold	30
Unused Bytes	0

FK-OLT-20/2

3.3.2.4 Information

Web interface

To check the ONU Information in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose ONU Information.

ONU Information -- Slot 1	
EPON-1 OnuMac = b8-26-d4-01-90-50	
Model Name	FK-ONU-20L
Serial Number	12ON04260311
Output Optical Center Wavelength (nm)	1310
Min. TX Power (dBm)	0
Max. TX Power (dBm)	4
Min. RX Operating Wavelength (nm)	1480
Max. RX Operating Wavelength (nm)	1500
RX Sensitivity (dBm)	-22
RX Saturation Power (dBm)	3
Mac Address	b8-26-d4-01-90-50
Firmware Version	0xc230
Chip ID	0x3715
Chip Version	0xa0060727
Boot Code Version	0xc230
Personality Version	f8
App0 Version	0xc230
App1 Version	0xc230
Back	

Parameter description:

- **Model Name** : show the ONU Model.
- **Serial Number**: show the ONU serial number.
- **Output Optical Center Wavelength (nm)**: show the ONU transmission wavelength.
- **Min. TX Power (dBm)** : show the minimum output optical power.
- **Max. TX Power (dBm)**: show the maximum output optical power.
- **Min. RX Operating Wavelength (nm)**: show the minimum ONU receiving wavelength.
- **Max. RX Operating Wavelength (nm)**: show the minimum ONU receiving wavelength.
- **RX Sensitivity (dBm)** : the minimum input optical power.
- **RX Saturation Power (dBm)**: the maximum input optical power.
- **Mac Address** : show the ONU MAC address.
- **Firmware Version** : show the ONU firmware version.
- **Chip ID** : show the EPON chipset ID.
- **Chip Version** : show the EPON chipset version.
- **Boot Code Version** : show the boot code version.
- **Personality Version**: show the personality version.
- **App# Version**: show the App# version.
- **Buttons**
- **Back**: Go back to the ONU list page.

3.3.2.5 Traffic Management

3.3.2.5.1 Rules Setting

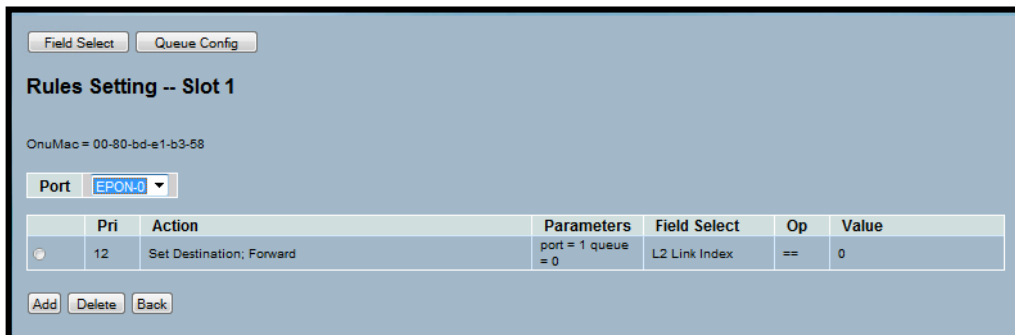
Function description:

The Rules Setting shows ONU traffic information that includes rule Priority, Action, Parameters, Field Select, Op, Value. You can control the user data flow by setting the rules. Classification is the process of deciding which frames are forwarded to particular queues and passed through the ONU. Filtering is the process of deciding which frames should be dropped, and not passed through the ONU. An ONU has a Queue Configuration, which describes the number and sizes of queues in use, as well as their connectivity to user ports and EPON logical links. An ONU also has a classification scheme, which is a set of rules describing how traffic is forwarded to priority queues in either direction, and possibly a set of filtering rules to control access to the PON.

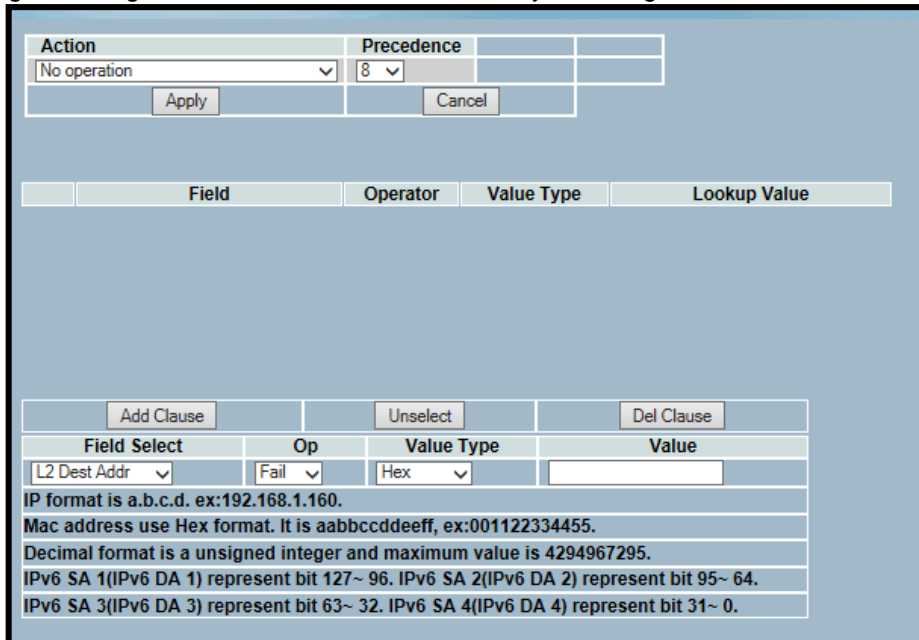
Web interface

To set Rules to a ONU in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose Traffic Management.
2. To add a new rule click on the Add button.



3. The clause can be added by clicking Add Clause button. The maximum clause number is eight for single rule. You can delete a clause by selecting a item and click Del Clause button.



4. After adding the clauses, define the Action to be taken in case the received packet applies to the rule.
5. Define the rule Precedence (Priority).
6. Define the port and queue in which the rule will be applied. The fields Uni Port and Queue, will not be shown for all type of actions. When the rule is being created inside one of the User ports, the field UNI port will be replaced by Link Index.
7. Click on the apply button.

Parameter description:

Action: The rule action is the action(s) taken upon the frame if all clauses of the rule are true. For example, rules might set the destination queue for a frame, might add a VLAN tag, or might discard the frame.

Precedence: The implemented precedence values for the TK3713 range from 0..15. Lower numbers represent higher precedence rules; 0 is the highest precedence possible.

Action Parameter: Some actions have additional parameters, as noted below. Rules with other actions should set this field to zero.

1. Action = Set Destination Size Description

Parameter 1 = EPON Link index (upstream) 0..n-1 or UNI Port (downstream) 1..n

Parameter 2 = Queue (relative to link/port) 0..n-1

2. Action = Set VIDSize Description

Parameter 1 = VID (bits 11:0)

3. Action = Set COS

Parameter 1 = COS (bits 2:0)

Field Select: Field selectors describe fields in Ethernet frames that can be matched in rules.

Op (operator): value symbol description

0 Fail Never match

1 == Field Equal to value

2 != Field Not equal to value

3 <= Field Less than or equal to value

4 >= Field Greater than or equal to value

5 exists True if field exists (value ignored)

6 !exist True if field does not exist (value ignored)

7 True Always match

Value Type: It includes 3 types. Hex, Decimal and IP format. When field is IPv4 DA or IPv4 SA, you must select IP format type. When field is L2 Dest Addr, you must select Hex type. When field is Eth VID, you must select Decimal type.

Value: Value describe look-up value in Ethernet frames that can be matched in rules.

3.3.2.5.2 Field Select

Function description:

This command sets the fields parsed from each frame which are used in lookup engine rules to filter or classify frames. Each port on the ONU has a lookup engine (LUE) that processes frames received on that port. Each lookup engine has a number of field selectors supported in the hardware. Each field is programmed with a field code that describes the field parsed from the frame in terms of protocol layer, dword in the frame, bit start, and bit width. The current programming of each field is described. The Reference Count indicates the number of clauses in rules that are currently using this field. If the field is currently unused, the reference count will be zero, and the layer select, dword offset, bit offset, and bit width will contain the maximum possible values for that field on that ONU.

Fields with a non-zero reference count cannot be reprogrammed with the Set message. All rules using a given field must be deleted before the meaning of that field is changed. Note that hardware and firmware system rules will also use fields in the LUE. These rules cannot be deleted, and so it is possible that some reference counts will never go to zero.

Web interface

To configure the Field Select of the ONU in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose Traffic Management and click the button Field Select.

Rules Setting
Queue Config

Field Select -- Slot 1 Epon Port

OnuMac = 00-80-bd-e1-b3-58

	Index	Name	RefCount	LayerSel	DWord	BitOffset	FieldWidth
<input type="radio"/>	0	L2 Dest Addr	1	0	0	0	1
<input type="radio"/>	1	L2 Source Addr	1	0	0	0	1
<input type="radio"/>	2	L2 Link Index	12	1	1	0	8
<input type="radio"/>	3	L2 Length/Type	10	2	0	0	16
<input type="radio"/>	4	Eth VID	10	3	0	16	12
<input type="radio"/>	5	Unused	0	7	7	31	32
<input type="radio"/>	6	IPv4 Protocol	0	5	2	16	8
<input type="radio"/>	7	Unused	0	7	7	31	32
<input type="radio"/>	8	Unused	0	7	7	31	16
<input type="radio"/>	9	Unused	0	7	7	31	16
<input type="radio"/>	10	Unused	1	7	7	31	16

Save
Edit
Reset
Back

The Index 5,6,7,8 and 9 are editable in EPON Port by clicking in the Edit button.
 The index 2,5,6,7,8,9 and 10 are editable in UNI Port1/2 by clicking in the Edit button.
 To apply the changes click on Save.

3.3.2.5.3 Queue Configuration

Function description:

This command configures the upstream and downstream queues on the ONU. The upstream queues hold frames destined for the Logical Links, the downstream queues for the UNI Ethernet ports. Queue sizes are specified in the order of queue priority, where the first queue has the highest priority. Note that the Queue Configuration command causes any existing Classification rules on the ONU to be invalidated. Therefore a Queue configuration change should always be followed by Classification commands to re-install the required classification rules. Filtering rules on the ONU remain in place.

The message above consists of two configuration sections: upstream and downstream. Links are configured in the upstream section of the message, where each link can be assigned one or more queues. The downstream section specifies port configuration, where each port can be assigned one or more queues.

Web interface

To configure ONU Queues in the web interface:

1. Click OLT Management,OLT VIEW, on the OLT Function choose ONU List,on the ONU function choose Traffic Management and click on the button Queue Config.

Rules Setting
Field Select

Queue Configuration -- Slot 1

OnuMac = 00-80-bd-e1-b3-58

Link Index	Queue #	Queue Size
<input type="radio"/> Link 0	1	16
<input type="radio"/> Link 1	1	16
<input type="radio"/> Link 2	1	12

Add new entry
Edit entry
Delete entry
Back

Queue Size Unit : 4k
If Queue configuration changed, you should reset ONU

Port Index	Queue #	Queue Size
<input type="radio"/> Port 1	2	12,10
<input type="radio"/> Port 2	1	22

Save
Edit
Cancel

Down used size 44, Up used size 44, Free used size 206

*Queue Config separate with comma.

*Each Link Queue # Maximum is 8, Total Upstream Queue # is 10.

*Each Port Queue # Maximum is 8, Total Downstream Queue # is 16.

*Every Queue Size Minimum is 2, Every Queue Size Maximum is 100.

*If down queue size is 1~56, total up queue max size is 238.

*If down queue size is 57~120, total up queue max size is 174.

*If down queue size is 121~184, total up queue max size is 110.

*If down queue size is 185~248, total up queue max size is 46.

*Down queue size plus up queue size should not be larger than 294.

*If up queue size is 175~238, total down queue max size is 56.

*If up queue size is 111~174, total down queue max size is 120.

*If up queue size is 47~110, total down queue max size is 184.

*If up queue size is 1~46, total down queue max size is 248.

The above picture display three LLID.

- Link Index 0 has one queue and queue size is 16*4k .
- Link Index 1 has also one queue and queue size is 16*4k.
- Link Index 2 has one queue and queue size is 12*4k.
- The three Link Index represent upstream.
- Port 1 has two queues and queue size is 12*4k and 10*4k.
- Port 2 has one queue and queue size is 22*4k.

Parameter description:

- **Buttons**
 - Add new entry:** A new Logical Link will be added.
 - Edit entry:** The selected Logical Link will be edited.
 - Delete entry:** The selected Logical Link will be deleted.
 - Save:** Click to Save changes.
 - Edit:** the selected port will be edited.
 - Cancel:** The non-saved configurations will be discarded.

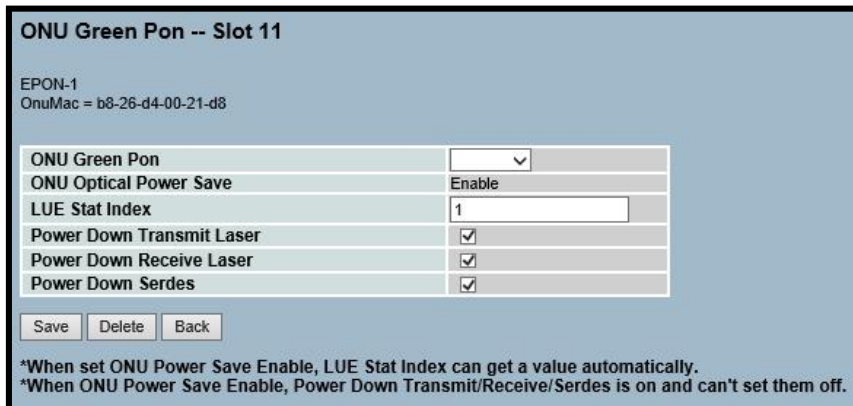
3.3.2.6 Green Pon (FK-OLT-20/2)

Note: Function operational for the Industrial ONU models.

Web interface

To configure the Green PON for the FK-OLT-20/2 in the web interface.

1. Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose ONU Green PON.



ONU Green Pon -- Slot 11

EPON-1
OnuMac = b8-26-d4-00-21-d8

ONU Green Pon	<input type="text" value="v"/>
ONU Optical Power Save	Enable
LUE Stat Index	<input type="text" value="1"/>
Power Down Transmit Laser	<input checked="" type="checkbox"/>
Power Down Receive Laser	<input checked="" type="checkbox"/>
Power Down Serdes	<input checked="" type="checkbox"/>

*When set ONU Power Save Enable, LUE Stat Index can get a value automatically.
*When ONU Power Save Enable, Power Down Transmit/Receive/Serdes is on and can't set them off.

Parameter description:

- **ONU Green Pon:** enable/disable the Green PON for the ONU.
- **ONU Optical Power Save:** show the status of the Power Save configuration.
- **Buttons**
 - Save:** Click to Save changes.
 - Delete:** reset to the default configuration - disable.
 - Back:** Go back to the ONU List page.

3.3.2.7 IGMP Snooping Parameters

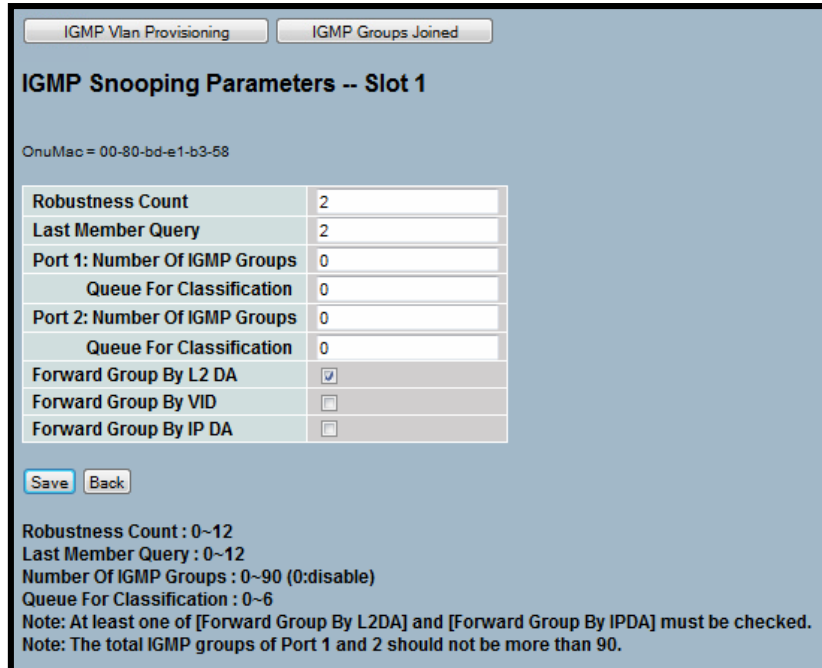
This session describe how to configure IGMP snooping and some IGMP VLAN setting.

3.3.2.7.1 IGMP Snooping Parameters

Web interface

To configure the IGMP Snooping Parameters in the web interface:

Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose IGMP Snooping.



IGMP Vlan Provisioning IGMP Groups Joined

IGMP Snooping Parameters -- Slot 1

OnuMac = 00-80-bd-e1-b3-58

Robustness Count	2
Last Member Query	2
Port 1: Number Of IGMP Groups	0
Queue For Classification	0
Port 2: Number Of IGMP Groups	0
Queue For Classification	0
Forward Group By L2 DA	<input checked="" type="checkbox"/>
Forward Group By VID	<input type="checkbox"/>
Forward Group By IP DA	<input type="checkbox"/>

Save Back

Robustness Count : 0~12
 Last Member Query : 0~12
 Number Of IGMP Groups : 0~90 (0:disable)
 Queue For Classification : 0~6
 Note: At least one of [Forward Group By L2DA] and [Forward Group By IPDA] must be checked.
 Note: The total IGMP groups of Port 1 and 2 should not be more than 90.

This command is general IGMP Snooping configuration, which has four parameters Robustness Count-Last Member Query, Number of IGMP Groups (for port 1 and port 2), and Queue for Classification (for port 1 and port 2). The ONU does not need to be explicitly provisioned, because the ONU obtains many values by snooping. The Query maximum response times are snooped from the query messages generated by the OLT. The ONU measures the interval between snooped General Queries to detect the General Query Interval of network Query.

Parameter description:

- Robustness Count:** The Robustness Count is the number of IGMP General Queries. The query may pass with no corresponding IGMP Report reply before a Groups is removed. So if Robustness Count is set 0, the group will be removed when it does not get any respond.
 Range: 0~12 / Default: 2
- Last Member Query:** If the Group exists, the Last Member Query represents the number of IGMP Group Specific Queries that may pass with no corresponding IGMP Report reply.
 Range: 0~12 / Default: 2
- Number Of IGMP Groups:** This parameter is set per port. The number of IGMP Groups means how many Groups can add in this port. If the number of IGMP Groups is set 0, that means disabled IGMP snooping, and all IGMP requests will be sent.

Range: 0~90 (0:disable) / Default: 0

- **Queue For Classification:** This parameter can decide how many Queue used for classification of downstream IP multicast traffic.

Range: 0~6 (0:disable) / Default: 0

- **Buttons**

Save: Click to Save changes.

Back: Go back to the ONU List.

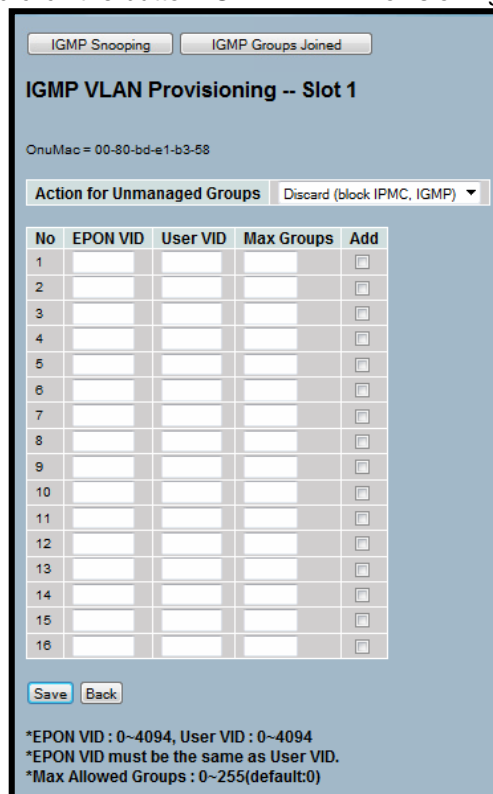
3.3.2.7.2 IGMP VLAN Provisioning

This command can set Tag for the IPMC Frame. There are sixteen groups can be set. If the number of IGMP VLANs is in unmanaged Group, the frame will be Discard or Ignored. The “Discard” means blocking all IPMC and IGMP. The “Ignored” means forwarded data and unchanged. The ONU does not support VID translation, and the VID must be identical for VLAN.

Web interface

To configure IGMP VLAN Provisioning in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose IGMP Snooping and click the button IGMP VLAN Provisioning.



IGMP Snooping IGMP Groups Joined

IGMP VLAN Provisioning -- Slot 1

OnuMac = 00-80-bd-e1-b3-58

Action for Unmanaged Groups: Discard (block IPMC, IGMP)

No	EPON VID	User VID	Max Groups	Add
1				<input type="checkbox"/>
2				<input type="checkbox"/>
3				<input type="checkbox"/>
4				<input type="checkbox"/>
5				<input type="checkbox"/>
6				<input type="checkbox"/>
7				<input type="checkbox"/>
8				<input type="checkbox"/>
9				<input type="checkbox"/>
10				<input type="checkbox"/>
11				<input type="checkbox"/>
12				<input type="checkbox"/>
13				<input type="checkbox"/>
14				<input type="checkbox"/>
15				<input type="checkbox"/>
16				<input type="checkbox"/>

Save Back

*EPON VID : 0~4094, User VID : 0~4094
 *EPON VID must be the same as User VID.
 *Max Allowed Groups : 0~255(default:0)

Parameter description:

- **Action for Unmanaged Groups:** This parameter has two choices, Discard (block IPMC, IGMP) and Ignore (forward unchanged).

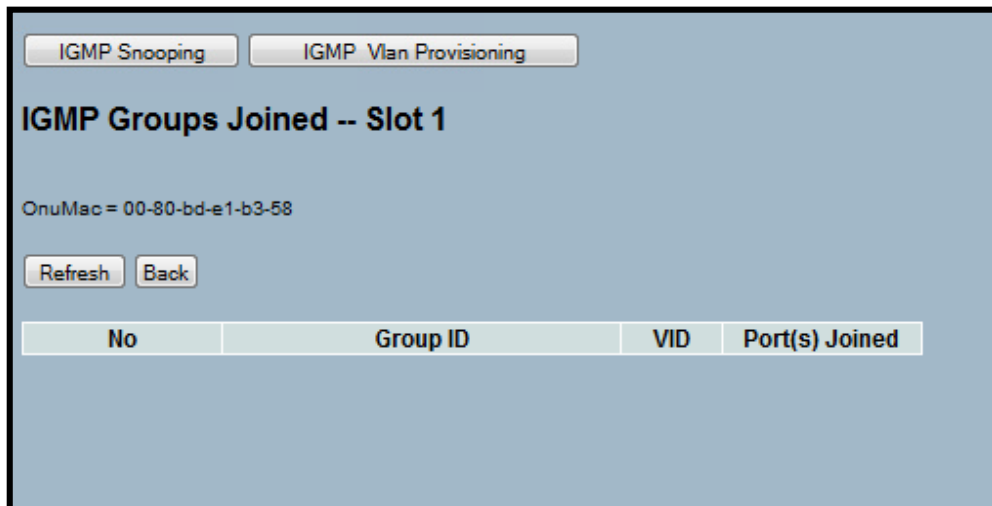
- **EPON VID:** IPMC will be sent to OLT, the frame uses EPON VID.
Range: 0~4096
- **User VID:** The User VID is VID of IPMC, it get from ONU user port.
Range: 0~4096
- **Max Allowed Groups:** This parameter limits IGMP VLAN groups. The Max Allowed Groups is the maximum groups can be joined in each VLAN by this ONU. If the Max Allowed Groups is setting 0, the ONU will not join any groups, and will discard all IGMP frames on this VLAN.
Range: 0~255

3.3.2.7.3 IGMP Groups Joined

Web interface

To check the IGMP Groups Joined in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose IGMP Snooping and click the button IGMP Groups Joined.



This command will show the entries in the IGMP group table. It will list the number of port and Group IP.

3.3.2.8 Bridge Config

3.3.2.8.1 Bridge Config

Web interface

To configure ONU Bridge Config in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose Bridging Config.



ONU Broadcast Queue ONU VLAN Options

ONU Bridge Config -- Slot 11

EPON-1
OnuMac = b8-26-d4-00-21-d8

Port 1

Age Limit (8.75ms)	8192
Entry Limit (Entries)	64
Learning Mode	Forward (802.1d Learning) ▼

Port 2

Age Limit (8.75ms)	8192
Entry Limit (Entries)	64
Learning Mode	Forward (802.1d Learning) ▼

Save Reset Back

Parameter description:

- **Age Limit (8.75ms)** : the time that the address will stay on the ONU Dynamic Table.
- **Entry Limit (Entries)**: define the number of MAC addresses that the ONU can store locally on the ONU Dynamic table. The limit is 64.
- **Learning Mode**: There are two kinds of Learning Modes, Forward (802.1d Learning) and Drop Until Learned (MAC Access Control).
Forward mode forward unlearned address, which is the default behavior. Drop Until Learned means the port learns by the allowed learning entry limit, and if the frames are discarded, the MAC address will not be learned.
- **Buttons**
 - Save**: Click to Save changes.
 - Reset**: Click to undo any changes made locally and revert to previously saved values.
 - Back**: Go back to the ONU list Page.

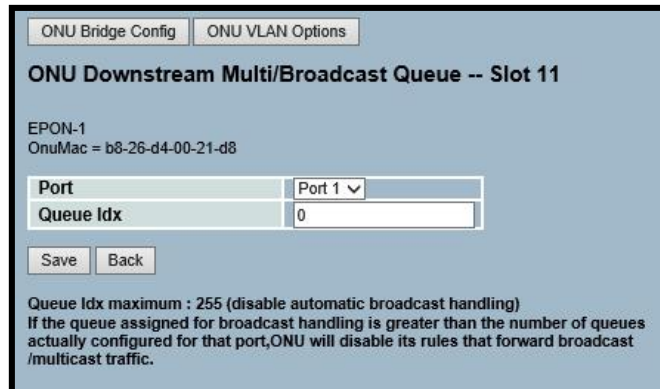
3.3.2.8.2 Downstream Multi/Broadcast Queue

This selects the broadcast/multicast queue to be used in the downstream direction. A different broadcast/multicast queue may be selected per port. If the queue assigned for broadcast handling is greater than the number of queues actually configured for that port, ONU will disable its rules that forward broadcast/multicast traffic.

Web interface

To configure the ONU Downstream Multicast/Broadcast Queue in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose Bridging Config and click the button ONU Broadcast Queue.



Parameter description:

- **Queue Idx** : The broadcast/multicast queue index to be specified for a given port.
- **Buttons**
Save: Click to Save changes.
Back: Go back to the ONU list Page.

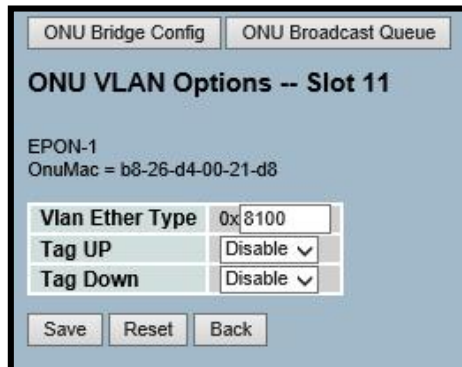
3.3.2.8.3 VLAN Options

This command is for IGMP VLAN Ether Type options. It can set Ether Type for TAG under IGMP VLAN.

Web interface

To configure ONU VLAN Options in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose Bridging Config and click the button ONU VLAN Options.



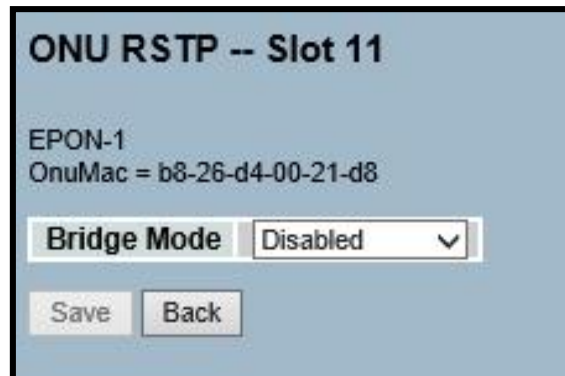
- **Parameter description:**
- **VLAN Ether Type**: VLAN Ether Type uses hexadecimal.
- **Tag UP**: This parameter can set Enable or Disable.
- **Tag Down**: This parameter can set Enable or Disable. Buttons
Save: Click to Save changes.
Reset: Click to undo any changes made locally and revert to previously saved values.
Back:

3.3.2.9 ONU RSTP

Web interface

To configure the ONU RSTP in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose ONU RSTP.



ONU RSTP -- Slot 11

EPON-1
OnuMac = b8-26-d4-00-21-d8

Bridge Mode Disabled ▾

Save Back

Parameter description:


- **Bridge Mode :**
Disabled: Block RSTP packets
Pass Through : Allow RSTP packets
- **Buttons**
Save: Click to Save changes.
Back: Go back to the ONU List Page.

3.3.2.10 ONU Dynamic Table

Web interface

To check the ONU Dynamic Table in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose ONU Dynamic Table.



EPON-1		
OnuMac = b8-28-d4-00-21-d8		
No.	Port	Mac
1	1	00-15-5d-f8-2e-c9
2	1	00-22-15-08-86-9c
3	1	00-40-c7-73-05-00
4	1	00-50-56-9c-4f-f4
5	1	00-50-56-9c-4f-f5
6	1	b8-28-d4-00-00-01
7	1	bc-5f-f4-2b-de-7f

Back

Parameter description:

- **No.** show the entry number.
- **Port** : show the ONU port number
- **Mac**: show the MAC Addresses.
- **Buttons**
Back: Go to the ONU List Page.

3.3.2.11 ONU Misc Operation

Web interface

To configure ONU Operations in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose ONU Operations.



ONU Misc Operation -- Slot 11	
EPON-1 OnuMac = b8-26-d4-00-21-d8	
Enable ONU	Enable ONU User Traffic
Disable ONU	Disable ONU User Traffic
Reset ONU	Reset(Reboot) ONU
Restore ONU	Restore ONU
Configuration Export	Configuration Export
Configuration Import	Configuration Import
Back	

Parameter description:

- **Enable ONU:** Enable ONU User Traffic
- **Disable ONU:** Disable ONU User Traffic
- **Reset ONU:** Reset(Reboot) ONU
- **Restore ONU:** Restore ONU
- **Configuration Export:** Configuration Export
- **Configuration Import:** Configuration Import
- **Buttons**
Back: Go back to the ONU List Page.

3.3.2.12 Loopback Test

Function description:

This is an integrated OAM loopback test procedure. It commands the OLT to perform a connectivity and link quality test on a logical link. The test involves the following steps:

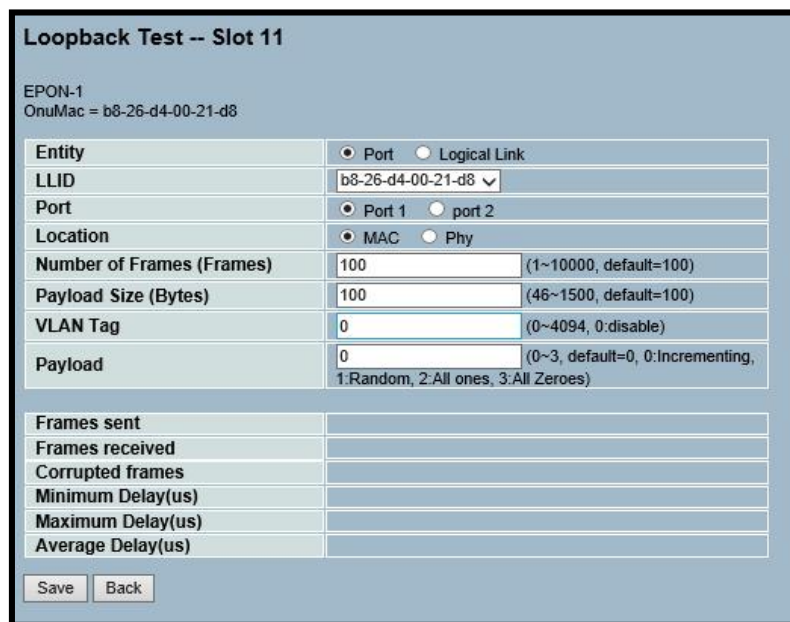
- (1) The OLT asks the ONU to put either a link or a UNI port (MAC or PHY) in loopback.
- (2) The OLT sends special frames downstream which will be looped back upstream by the target ONU.
- (3) After the requested number of frames have been transmitted and received, the OLT commands the ONU to get out from OAM Loopback mode. The target logical link resumes user traffic service.
- (4) Loopback is finished, and the result would be reported.

A logical link loopback does not affect other logical links on the same physical ONU.

Web interface

To perform the ONU Loopback Test in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose Loopback Test.



Loopback Test -- Slot 11

EPON-1
OnuMac = b8-26-d4-00-21-d8

Entity	<input checked="" type="radio"/> Port <input type="radio"/> Logical Link
LLID	b8-26-d4-00-21-d8
Port	<input checked="" type="radio"/> Port 1 <input type="radio"/> port 2
Location	<input checked="" type="radio"/> MAC <input type="radio"/> Phy
Number of Frames (Frames)	100 (1~10000, default=100)
Payload Size (Bytes)	100 (46~1500, default=100)
VLAN Tag	0 (0~4094, 0:disable)
Payload	0 (0~3, default=0, 0:Incrementing, 1:Random, 2:All ones, 3:All Zeroes)
Frames sent	
Frames received	
Corrupted frames	
Minimum Delay(us)	
Maximum Delay(us)	
Average Delay(us)	

Save Back

Parameter description:

- **Entity:** To specify the end point on the ONU in a loopback test. Possible Values are [Port] or [Logical Link].
- **LLID :** The Mac Address of the target logical link or Mac Address of a logical link which is connected to the target entity.
- **Port:** If the loopback entity is [Port], the target UNI port should be specified.
- **Location :** If the loopback entity is [Port],the target location([Mac] or [Phy])should be specified.
- **Payload Size (Bytes):** The size of the data portion of an Ethernet frame.
- **Number of Frames (Frames):** Number of frames to transmit in a loopback test.
- **VLAN Tag:** Specifies the VID of the loopback frames if frame tagging is wished.1-4094 are valid values for tagged frame loopback. 0 disable frame tagging.
- **Test Result:**
Includes [Frames sent], [Frames received OK], [Corrupted frames received], [Minimum Delay(μs)], [Maximum Delay (μs)], [Average Delay (μs)].
A frame is presumed lost if it has not returned after 1second. Delay stats are accumulated only for frames received OK. Five consecutively lost frames will cause the test to be aborted.
- **Buttons**
Save: Click to Save changes.
Back: Go back to the ONU List Page.

3.3.2.13 Logical Links

3.3.2.13.1 Logical Links

Function description:

The "Logical Link " table displays all provisioned logical links belonging to an ONU.

Web interface

To configure the ONU Logical Links in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose Logical Links.

Logical Links -- Slot 11
 EPON-1
 OnuMac = b8-26-d4-00-21-d8

Link Index	Function	Link Label	Status	Bridging Mode
0	▼	b8-26-d4-00-21-d8	Registered	SimpleBridge
1	▼	b8-26-d4-00-21-d9	Registered	SimpleBridge

Parameter description:

- **Link Index:** Sequential numbering from 1 to N (N <= 8).
- **Function:** show the management sub-menus.
SLA
Multicast SLA
Epon Security
Statistics
Link Operations
- **Link Label:** The globally unique Mac Address assigned to a logical link. The Mac Address is used within an EPON system to identify the logical link.
- **Status:** Possible values are [Registered] or [Blocked].
- **Bridging Mode:** The provisioned bridging mode of a logical link.
- **Buttons**
Refresh: Click to refresh the page.
Back: Go back to the ONU List Page.

3.3.2.13.2 SLA (Service Level Agreement) for FK-OLT-20

About the bandwidth, the Maximum Allowed Bandwidth (Max Bw) must be more than Minimum Guaranteed Bandwidth (Min Bw), the difference must be 256Kbps or greater.

The Logical Link with one of the three priority levels for scheduling purposes. The three priorities are 0(high),1(medium), 2(low). The priority is decided in SLA parameters, mode, Maximum Allowed Bandwidth, and Minimum Guaranteed Bandwidth, the configuration with the following SLA Parameters.

Web interface

To configure ONU SLA in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose Logical Links and on the LLID function choose SLA.

Logical Link SLA -- Slot 1
OnuMac = 00-80-bd-e1-b3-58

SLA		<input checked="" type="radio"/> Disable <input type="radio"/> Enable	
Upstream		Downstream	
Max Bw (Kbps)	<input type="text" value="20000"/>	Max Bw (Kbps)	<input type="text" value="20000"/>
Min Bw (Kbps)	<input type="text" value="20000"/>	Min Bw (Kbps)	<input type="text" value="20000"/>
Max Burst (KBytes)	<input type="text" value="100"/>	Max Burst (KBytes)	<input type="text" value="100"/>
Mode	<input checked="" type="radio"/> Tolerant <input type="radio"/> Sensitive	Mode	<input type="radio"/> Tolerant <input checked="" type="radio"/> Sensitive
DBA Tokens (KBytes)	<input type="text" value="4"/>		
Scheduler Min-tokens (KBytes)	<input type="text" value="2"/>	Scheduler Min-tokens (KBytes)	<input type="text" value="2"/>
Scheduler Max-tokens (KBytes)	<input type="text" value="2"/>	Scheduler Max-tokens (KBytes)	<input type="text" value="2"/>
Force Report	<input type="radio"/> No <input checked="" type="radio"/> Yes		

* ONU must be authorized before llid SLA can be changed.
 * Max Bw : 1000~1000000 (default=100000 upstream;1000000 downstream)
 * Min Bw : 0~1000000 (default=100000 upstream;1000000 downstream)
 * The minimum non-zero value for [Min BW] is 256
 * Priority Level 0: [Min BW]=[Max BW] and Mode=Sensitive
 * Priority Level 1: [Min BW]> 0 and Mode=Tolerant
 * Priority Level 2: [Min BW]= 0 and Mode=Tolerant
 * Max Burst : 1~256 (default=100)
 * DBA Tokens : 0~255 (default=4)
 * Scheduler Max-token : 0~511 (default=2)
 * Scheduler Min-token : 0~511 (default=2)

DBA Token, Scheduler Max Token, Scheduler Min Token, and Force Report provide a low-level control, which is used in queue schedulers. The link and queue schedulers use a weighted priority based round-robin discipline.

They set upstream and downstream weights on a link. It is recommended that the parameters use the default settings as long as possible. If the Force Report is YES, it means each grant from OLT forces a report from ONU, Downstream has no such setting. The default value of the Force Report is YES. After the ONU is authorized, SLA enable/disable can be changed.

Parameter description:

- Maximum Allowed Bandwidth (Max Bw):** The maximum allowed use Bandwidth, when the traffic is not crowded.
Range: 1000~1000000 (Unit: Kbps) / Default: 100000
- Minimum Guaranteed Bandwidth (Min Bw):** This parameter will guarantee minimum bandwidth, when the data need to transmit, no matter what the traffic is crowded or not.
Range: 0~1000000 (Unit: Kbps) / Default: 100000
- Max Burst:** Range: 1~255 (Unit: KBytes) / Default: 100
- DBA Token:** Range: 0~255 (Unit: KBytes) / Default: 4
- Scheduler Max token:** Range: 0~511 (Unit: KBytes) / Default: 2
- Scheduler Min Token:** Range: 0~511 (Unit: KBytes) / Default: 2
- Force Report:** It has two modes, YES and NO. "YES" is default value.

3.3.2.13.3 SLA (Service Level Agreement) for FK-OLT-20/2

3.3.2.13.3.1 Upstream Ingress SLA

Web interface

To configure the Upstream Ingress SLA in the web interface:

1. Click ONU Management.
2. Click ONU List.
3. For the selected ONU, choose the option Logical Link in the function combo box.
4. For the selected Logical Link, choose the option SLA in the function combo box.
5. Set the parameters.
6. Click Save.

Upstream Egress SLA
Downstream Egress SLA

Upstream Ingress SLA

EPON-2
OnuMac = b8-26-d4-00-2c-b8

SLA		Disable	
Min Shaper	Disable ▾	Max Shaper	
Min Bw (Kbps)	0	Max Bw (Kbps)	1000000
Max Burst (KBytes)	0	Max Burst (KBytes)	255
Scheduler Lvl	0 ▾	Scheduler Lvl	0 ▾
Schedule Weight	0	Schedule Weight	32

DBA Parameters
Force Report ☐ No ☒ Yes
Polling Level 0 ▾

Save
Back

If Upstream/Downstream Egress SLA Max BW and Max Burst is 0. It represents no bridge mode found for this link.

*This command is used for upstream Link DBA only.
Min Shaper/Min Bw : 0, 256~1000,000, Max Shaper/Max Bw : 256~1000,000
Min Shaper/Max Burst : 1~ 256, Max Shaper/Max Burst : 1~ 256
Min Shaper/Schedule Weight : 2~ 32, Max Shaper/Schedule Weight : 2~ 32
*The minimum shaper scheduler level must be less than the maximum shaper scheduler level.
The Minimum and Maximum Scheduler Weight for the link SLA must be set to the same value. If they are set to different values, the firmware uses the smaller of the two values and ignores the larger value.

Parameter description:

- **Min Shaper/Min Bw:** This parameter will guarantee a minimum bandwidth.
Range: 256~1000000 (Unit: Kbps) / Default: 0
- **Max Shaper/Max Bw:** The maximum allowed use of Bandwidth.
Range: 256~1000000 (Unit: Kbps) / Default: 100000
- **Min and Max Shaper/Max Burst:**
Range: 1~256 (Unit: KBytes) / Min Default: 0 / Max Default: 255
- **Min and Max Shaper/Schedule Weight:** Range: 2~ 32. The minimum shaper/scheduler level must be less than the maximum shaper/scheduler level. The Minimum and Maximum Scheduler Weight for the link SLA must be set to the same value. If they are set to different values, the firmware will use the smaller of the two values and ignore the larger value.
- **Force Report :** YES = Force Report NO = No Auto OAM Bandwidth Padding
- **Polling level:** For priority 0, the scheduling latency is approximately equal to the larger value of the polling rate and the cycle length.
- **Upstream/downstream Queue SLA :** Dynamic bandwidth allocation (DBA) is used to adjust the uplink and downlink bandwidth of individual ONUs in real time, according to the traffic status of ONUs.

- **Buttons**
Save: Click to Save changes.
Back: Go back to the Logical Link page.

3.3.2.13.3.2 Upstream Egress SLA

Web interface

To configure the Upstream Egress SLA in the web interface:

1. Click ONU Management.
2. Click ONU List.
3. For the selected ONU, choose the option Logical Link in the function combo box.
4. For the selected Logical Link, choose the option SLA in the function combo box and then click on the button "Upstream Egress SLA".
5. Set the parameters.
6. Click Save.

Upstream Ingress SLA
Downstream Egress SLA

Upstream Egress SLA

EPON-2
OnuMac = b8-26-d4-00-2c-b8

Min Shaper	Disable ▾	Max Shaper	
Min Bw (Kbps)	0	Max Bw (Kbps)	1000000
Max Burst (KBytes)	0	Max Burst (KBytes)	255
Scheduler Lvl	0 ▾	Scheduler Lvl	0 ▾
Schedule Weight	0	Schedule Weight	32

If Max BW and Max Burst is 0. It represents no bridge mode found for this link.

Min Shaper/Min Bw : 0, 256~1000,000, Max Shaper/Max Bw : 256~1000,000
Min Shaper/Max Burst : 1~ 256, Max Shaper/Max Burst : 1~ 256
Min Shaper/Schedule Weight : 2~ 32, Max Shaper/Schedule Weight : 2~ 32
*The minimum shaper scheduler level must be less than the maximum shaper scheduler level.
The Minimum and Maximum Scheduler Weight for the link SLA must be set to the same value. If they are set to different values, the firmware uses the smaller of the two values and ignores the larger value.

Parameter description:

- **Min Shaper/Min Bw:** This parameter will guarantee a minimum bandwidth.
Range: 256~1000000 (Unit: Kbps) / Default: 0
- **Max Shaper/Max Bw:** The maximum allowed use Bandwidth.
Range: 256~1000000 (Unit: Kbps) / Default: 100000
- **Min and Max Shaper/Max Burst:**
Range: 1~256 (Unit: KBytes) / Min Default: 0 / Max Default: 255
- **Min and Max Shaper/Schedule Weight:** Range: 2~ 32. The minimum shaper/scheduler level must be less than the maximum shaper/scheduler level. The Minimum and Maximum Scheduler Weight for the link SLA must be set to the same value. If they are set to different values, the firmware will use the smaller of the two values and ignore the larger value.
- **Buttons**
Save: Click to Save changes.
Back: Go back to the Logical Link page.

3.3.2.13.3.3 Downstream Egress SLA

Web interface

To configure the Upstream Egress SLA in the web interface:

1. Click ONU Management.
2. Click ONU List.
3. For the selected ONU, choose the option Logical Link in the function combo box.
4. For the selected Logical Link, choose the option SLA in the function combo box and then click on the button "Downstream Egress SLA".
5. Set the parameters.
6. Click Save.

Upstream Ingress SLA
Upstream Egress SLA

Downstream Egress SLA

EPON-2
OnuMac = b8-28-d4-00-2c-b8

Min Shaper	Disable ▾	Max Shaper	
Min Bw (Kbps)	0	Max Bw (Kbps)	1000000
Max Burst (KBytes)	0	Max Burst (KBytes)	100
Scheduler Lvl	0 ▾	Scheduler Lvl	0 ▾
Schedule Weight	0	Schedule Weight	2

Save
Back

If Max BW and Max Burst is 0. It represents no bridge mode found for this link.

Min Shaper/Min Bw : 0, 256~1000,000, Max Shaper/Max Bw : 256~1000,000
 Min Shaper/Max Burst : 1~ 256, Max Shaper/Max Burst : 1~ 256
 Min Shaper/Schedule Weight : 2~ 32, Max Shaper/Schedule Weight : 2~ 32
 *The minimum shaper scheduler level must be less than the maximum shaper scheduler level.
 The Minimum and Maximum Scheduler Weight for the link SLA must be set to the same value. If they are set to different values, the firmware uses the smaller of the two values and ignores the larger value.

Parameter description:

- **Min Shaper/Min Bw** : This parameter will guarantee a minimum bandwidth.
Range: 256~1000000 (Unit: Kbps) / Default: 0
- **Max Shaper/Max Bw**: The maximum allowed use Bandwidth.
Range: 256~1000000 (Unit: Kbps) / Default: 100000
- **Min and Max Shaper/Max Burst**:
Range: 1~256 (Unit: KBytes) / Min Default: 0 / Max Default: 255
- **Min and Max Shaper/Schedule Weight**: Range: 2~ 32.The minimum shaper/scheduler level must be less than the maximum shaper/scheduler level. The Minimum and Maximum Scheduler Weight for the link SLA must be set to the same value. If they are set to different values, the firmware will use the smaller of the two values and ignore the larger value.
- **Buttons**
Save: Click to Save changes.
Back: Go back to the Logical Link page.

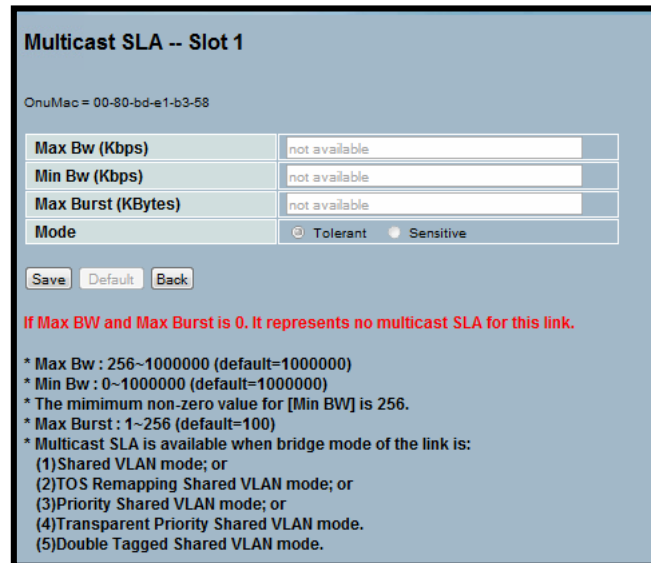
3.3.2.13.4 Multicast SLA

This command allows bandwidth control on multicast link for Shared VLAN. The aggregate shaper must be disabled, before setting the multicast SLA. If the aggregate shaper must be used, it must be enabled after setting multicast SLA.

Web interface

To configure ONU Multicast SLA in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose Logical Links and on the LLID function choose Multicast SLA.



Multicast SLA -- Slot 1

OnuMac = 00-80-bd-e1-b3-58

Max Bw (Kbps)	not available
Min Bw (Kbps)	not available
Max Burst (KBytes)	not available
Mode	<input checked="" type="radio"/> Tolerant <input type="radio"/> Sensitive

If Max BW and Max Burst is 0. It represents no multicast SLA for this link.

- * Max Bw : 256~1000000 (default=1000000)
- * Min Bw : 0~1000000 (default=1000000)
- * The minimum non-zero value for [Min BW] is 256.
- * Max Burst : 1~256 (default=100)
- * Multicast SLA is available when bridge mode of the link is:
 - (1) Shared VLAN mode; or
 - (2) TOS Remapping Shared VLAN mode; or
 - (3) Priority Shared VLAN mode; or
 - (4) Transparent Priority Shared VLAN mode.
 - (5) Double Tagged Shared VLAN mode.

FK-OLT-20

Parameter description:

- **Maximum Allowed Bandwidth (Max Bw)**
Range: 256~1000000 (Unit: Kbps)
Default: 1000000
- **Minimum Guaranteed Bandwidth (Min Bw)**
Range: 0~1000000 (Unit: Kbps)
Default: 1000000
- **Max Burst**
Range: 1~256 (Unit: KBytes)
Default: 100
- **Mode** : It has two modes, Tolerant and Sensitive.
Note: The Multicast SLA can be enabled in Shared VLAN, Priority Remapping Shared VLAN, Priority Shared VLAN, and Trans. Pri. Shared VLAN, Double Tagged Shared VLAN mode.
- **Buttons**
 - Save:** Save the configuration.
 - Default:** Restore the default configuration.
 - Back:** Go back to the Logical Link Page.

Multicast SLA -- Slot 11

EPON-1
OnuMac = b8-26-d4-00-21-d8

Min Shaper	Disable ▾	Max Shaper	
Min Bw (Kbps)	0	Max Bw (Kbps)	0
Max Burst (KBytes)	0	Max Burst (KBytes)	0
Scheduler Lvl	0 ▾	Scheduler Lvl	0 ▾
Schedule Weight	0	Schedule Weight	2

Save Back

If Max BW and Max Burst is 0. It represents no multicast SLA for this link.

Min Shaper/Min Bw : 0, 256~1000,000, Max Shaper/Max Bw : 256~1000,000
Min Shaper/Max Burst : 1~ 256, Max Shaper/Max Burst : 1~ 256
Min Shaper/Schedule Weight : 2~ 32, Max Shaper/Schedule Weight : 2~ 32
*The minimum shaper scheduler level must be less than the maximum shaper scheduler level.
The Minimum and Maximum Scheduler Weight for the link SLA must be set to the same value. If they are set to different values, the firmware uses the smaller of the two values and ignores the larger value.

FK-OLT-20/2

Parameter description:

- Min Shaper/Min Bw:** This parameter will guarantee a minimum bandwidth.

Range: 256~1000000 (Unit: Kbps)

Default: 0

- Max Shaper/Max Bw:** The maximum allowed use Bandwidth.

Range: 256~1000000 (Unit: Kbps)

Default: 100000

- Min and Max Shaper/Max Burst:** Range: 1~256 (Unit: KBytes)

Min Default: 0

Max Default: 255

- Min and Max Shaper/Schedule Weight:** Range: 2~ 32. The minimum shaper/scheduler level must be less than the maximum shaper/scheduler level. The Minimum and Maximum Scheduler Weight for the link SLA must be set to the same value. If they are set to different values, the firmware will use the smaller of the two values and ignore the larger value.

- Buttons**

Save: Click to Save changes.

Back: Go back to the Logical Link page.

3.3.2.13.5 Bridge Mode

This command sets the per-Logical Link forwarding mode and learning table entry limit. Logical links may be configured for simple 802.1d bridging or for various flavors of VLAN bridging.

The OLT maintains a single MAC table that may contain up to 3072 dynamically learned MAC addressees used for downstream bridging and other features. For bridging modes that use the MAC table, the OLT learns the SA of upstream frame on a per LLID basis. An upper limit on the number of table entries that may be used is maintained for each LLID. When the sum of dynamically learned addresses reaches the per-LLID limit, additional MAC addresses will not be learned even if there is room in the table. The aggregate size of all per LLID MAC tables may exceed the available hardware table size (3072). In such a configuration, if the entire learning table is full, the oldest entry from all per LLID tables will be the target for replacement.

In the event that a per-LLID learning table becomes full, an attempt to learn another MAC address on that LLID will trigger a MAC Table Overflow alarm to be issued to the host processor. In such a case the oldest entry in that table is subject to replacement by the SA of a frame received upstream (that is frames received by the EPON port).

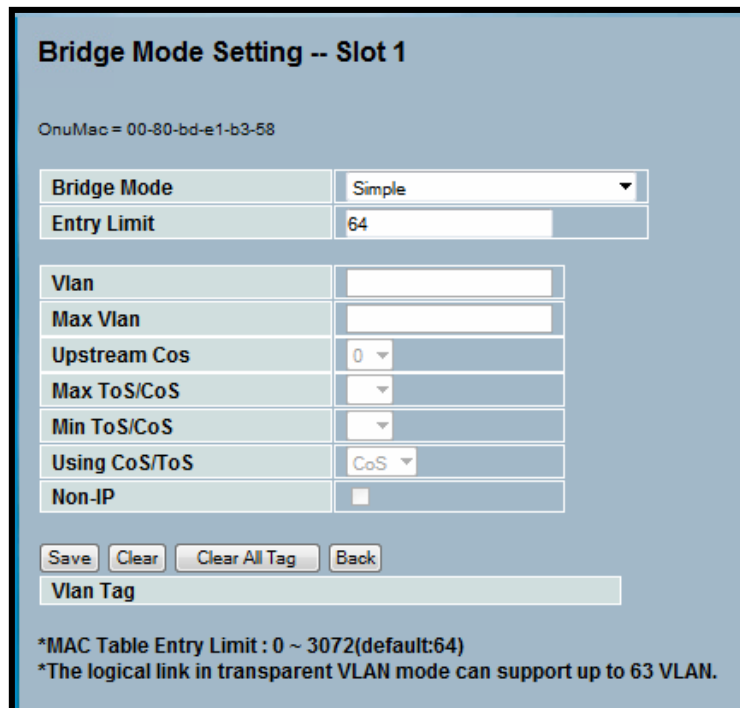
Bridging modes that require a VLAN tag will not forward traffic until at least one VID has been set.

If a conflict exists between LLIDs configured in different bridging modes (DA matches simple bridged, but VLAN tag matches an LLID configured in a VLAN mode) the packet will be dropped.

Web interface

To configure ONU Bridge Mode in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose Logical Links and on the LLID function choose Bridge Mode.



Bridge Mode Setting -- Slot 1

OnuMac = 00-80-bd-e1-b3-58

Bridge Mode	Simple
Entry Limit	64
Vlan	
Max Vlan	
Upstream Cos	0
Max ToS/CoS	
Min ToS/CoS	
Using CoS/ToS	CoS
Non-IP	<input type="checkbox"/>

Save Clear Clear All Tag Back

Vlan Tag

*MAC Table Entry Limit : 0 ~ 3072(default:64)
*The logical link in transparent VLAN mode can support up to 63 VLAN.

FK-OLT-20

Parameter description:

Bridge Mode: Decide data flow by way of setting various Bridging Type. Bridging Type include 15 types.

0 = Simple Bridged,

1 = Dedicated Single VLAN,

- 2 = Dedicated Double VLAN,
- 3 = Shared VLAN,
- 4 = Transparent VLAN,
- 7 = Prioritized VLAN,
- 8 = Priority Remapping Single VLAN,
- 9 = Priority Remapping Double VLAN,
- 10 = Priority Remapping Shared VLAN,
- 11 = Priority Shared VLAN,
- 13 = Transparent Priority Shared VLAN
- 14 = Transparent Shared VLAN with Broadcast
- 15 = Double Tagged Shared VLAN

Entry Limit: An upper limit on the number of table entries that may be used is maintained for each LLID.

Range: 0~3072

Default: 64

Vlan: VLAN ID

Max Vlan: used to set a range of VLAN for the Transparent Vlan Mode.

- **Buttons**

Save: Click to Save changes.

Clear: Flushes all system log entries.

Back:

Bridge Mode Setting -- Slot 11

EPON-1
OnuMac = b8-26-d4-00-21-d8

Bridge Mode	Simple
Entry Limit	64
Destination NNI port	NNI-1
Mac Overwrite	<input type="checkbox"/>
Discard Unknown Mac	<input type="checkbox"/>
Another Llid	

Vlan	
Max Vlan	
Upstream Cos	0
Max ToS/CoS	
Min ToS/CoS	
Using CoS/ToS	CoS
Non-IP	<input type="checkbox"/>

Vlan Tag

Priority Mode	
Mapping Type	CoS
Default Output CoS	7
Priority 0	0
Priority 1	1
Priority 2	2
Priority 3	3
Priority 4	4
Priority 5	5
Priority 6	6
Priority 7	7

*After all Bridge Mode is set, you must had better Save Start to avoid bridge mode data lost.
 *Mac Overwrite and Discard Unknown Mac can be set when Bridge Mode is Simple, Shared, Priority Remapping Shared, Priority Shared, Trans. Pri. Shared, Trans. Shared w/BCast, Double Tagged Shared Vlan
 *Discard Unknown Mac option can't be changed If the Bridge Mode Vlan is set. For example if shared vlan 10 has been set and Discard Unknown Mac enable, you set another Llid to shared vlan 10 and Discard Unknown Mac can't be change to disable.
 *Mac Overwrite can be changed by Llid.
 *The maximum value is 3072 in Entry Limit field.

FK-OLT-20/2

Parameters description:

- Bridge Mode:** Selects the type of data flow by choosing a Bridge Mode. Bridge Modes include 14 options.
 Simple Bridged,
 Dedicated Single VLAN,
 Dedicated Double VLAN,
 Shared VLAN,
 Transparent VLAN,
 Link Cross-Connect
 Prioritized VLAN,
 Priority Remapping Single VLAN,
 Priority Remapping Double VLAN,
 Priority Remapping Shared VLAN,

Priority Shared VLAN,
Transparent Priority Shared VLAN
Transparent Shared VLAN with Broadcast
Double Tagged Shared VLAN

- **Entry Limit:** An upper limit on the number of table entries that may be used for each LLID.
Range: 0~3072
Default: 64
- **Destination NNI Port:** defines the uplink port that will be used by the LLID.
- **Mac Overwrite:** when the number of entries on the table reaches the limit, it allows the entries to be overwritten.
- **Discard Unknown Mac:** it won't allow new entries on the table.
- **Another Llid:** the MAC address of the LLID on the other side of the link, used only when the bridge mode is Link Cross-connect.
- **Vlan:** VLAN ID
- **Max Vlan:** used to set a range of VLAN for the the Transparant Vlan Mode.
- **Upstream CoS:** defines the CoS value.
- **Max ToS/CoS:** defines the Max ToS/CoS value.
- **Min ToS/CoS:** defines the Min ToS/CoS value.
- **Using CoS/ToS:** defines which type of priority is going to be used.
- **Non-IP:** allows the passage of packets without IP header.
- **Mapping Type:** defines which type of priority is going to be used, necessary for the Re-mapping bridge modes.
- **Default Output CoS:** defines the output CoS.
- **Priority 0 ~ 7:** priority level.
- **Buttons:**

Save: Click to save the changes.

Clear: Click to clear the configuration.

Back: Click to Go back to the logical link page.

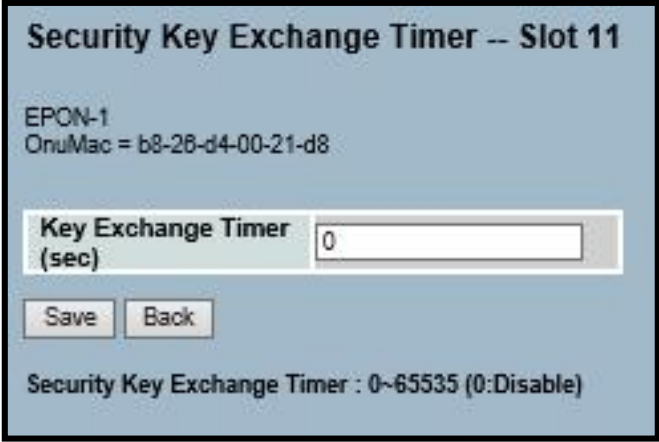
3.3.2.13.6 Security Key Exchange Timer(EPON Security)

This command is used in encryption keys. This parameter is a timeout value. When timer expires, a new key will be generated and exchanged. That setting 0 means disable security.

Web interface

To configure the ONU Security Key Exchange Timer in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose Logical Links and on the LLID function choose Epon Security.



Security Key Exchange Timer -- Slot 11

EPON-1
OnuMac = b8-28-d4-00-21-d8

Key Exchange Timer (sec)

Security Key Exchange Timer : 0~65535 (0:Disable)

Parameter description:

- **Key Exchange Timer (sec)**
0~65535 (0:Disable).
- **Buttons**
Save: Click to Save changes.
Back: Go back to the Logical Link Page.

3.3.2.13.7 Statistics

3.3.2.13.7.1 Llid Statistics(OLT)

Web interface

To check the LLID statistics in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose Logical Links and on the LLID function choose Statistics.

Onu Statistics

Llid Statistics(OLT Side) -- Slot 1

OnuMac = 00-80-bd-e1-b3-58

Upstream

Statistic	Count
Octets transferred	0
Total Frames transferred	0
Unicast Frames transferred	0
Broadcast Frames transferred	0
Multicast Frames transferred	0
CRC-32 Errors	0
Undersize Frames	0
Oversize Frames	0
64 Octet Frames	0
65-127 Octet Frames	0
128-255 Octet Frames	0
256-511 Octet Frames	0
512_1023Octet Frames	0
1024_1518Octet Frames	0
1519+Octet Frames	0
Frames dropped(queue overflow)	0
Octets dropped(queue overflow)	0
Octets delayed	0
Octets granted	0
Octets granted but unused	0
Maximum delay(units of 100 us)	0

*Clear Llid Statistics will clear all OLT Llid Statistics

FK-OLT-20

Onu Statistics	
Ilid Statistics(OLT Side) -- Slot 11	
EPON-1	
OnuMac = b8-26-d4-00-21-d8	
Receive ▼	Back
Name	Value
Bytes Received	15843
Frames Received	84
Unicast Frames Received	0
Broadcast Frames Received	22
Multicast Frames Received	62
Undersized Frames Received	0
Oversized Frames Received	0
FCS Errors	0
64 Byte Frames Received	14
65-127 Byte Frames Received	12
128-255 Byte Frames Received	38
256-511 Byte Frames Received	20
512-1023 Byte Frames Received	0
1024-1518 Byte Frames Received	0
Greater than 1518 Frames Received	0
MPCP Frames Received	36
MPCP Bytes Received	2304
Report Frames Received	3623259
Report Bytes Received	231888576
OAM Frames Received	10638
OAM Bytes Received	687592
MPCP Register Requests Received	1
MPCP Register Acknowledgements Received	1
MPCP Register Frames Received	0
MPCP Gates Frames Received	0
Line Code Errors	0
Line Code Error Max	0
Laser Power(dBm)	0.00

FK-OLT-20/2

Note: When the Power Monitor Function is enabled for the FK-OLT-20/2, the optical power received by the OLT can be checked on the last parameter (Laser Power) of the page above.

3.3.2.13.7.2 Llid Statistics(ONU)

Web interface

To check the LLID statistics in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose Logical Links, on the LLID function choose Statistics and click the button ONU Statistics.

Llid Statistics(ONU Side) -- Slot 1

OnuMac = 00-80-bd-e1-b3-58

Upstream ▼

Statistic	Count
Octets transferred	24000
Total Frames transferred	200
Unicast Frames transferred	200
Broadcast Frames transferred	0
Multicast Frames transferred	1
CRC-32 Errors	0
Undersize Frames	0
Oversize Frames	0
64 Octet Frames	1
65-127 Octet Frames	200
128-255 Octet Frames	0
256-511 Octet Frames	0
512_1023Octet Frames	0
1024_1518Octet Frames	0
1519+Octet Frames	0
Frames dropped(queue overflow)	0
Octets dropped(queue overflow)	0
Octets delayed	0
Octets granted	0
Octets granted but unused	0
Maximum delay(units of 100 us)	0

*Clear Llid Statistics will clear all ONU Llid Statistics

FK-OLT-20

Olt Statistics

Ilid Statistics(ONU Side) -- Slot 11

EPON-1
OnuMac = b8-26-d4-00-21-d9

Receive ▾ Back

Name	Value
Bytes Received	0
Framees Received	0
Unicast Frames Received	0
Multicast Frames Received	0
Broadcast Frames Received	0
64 Byte Frames Received	0
65-127 Byte Frames Received	0
128-255 Byte Frames Received	0
256-511 Byte Frames Received	0
512-1023 Byte Frames Received	0
1024-1518 Byte Frames Received	0
Greater than 1518 Frames Received	0
Undersized Frames Received	0
FCS Errors	0
Bytes Dropped	0
Frames Dropped	0
Bytes Delayed	0
Maximum Delay	0
Delay Threshold	30
OAM Frames	0
Errored Frames	0
Errored Frame Periods	0
MPCP Gates	0
MPCP Registers	0

FK-OLT-20/2

3.3.2.13.8 Link Operation

Web interface

To configure ONU List in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose ONU List, on the ONU function choose Logical Links and on the LLID function choose Link Operations.



Parameter description:

- **Block:** Deregister and Prevent Link Registering
- **Unblock:** Recover from Blocking
- **Rediscover:** Deregister the Link to Re-Register
- **Restore:** Restore Defaults of the Logical Link
- **Buttons**
 - Back:** Go back to the Logical Links Page.

3.3.3 ONU Authorization

Web interface

To authorize the ONU in the web interface:

1. Click OLT Management, OLT VIEW, on the OLT Function choose ONU List.
2. Select the ONU(s) and click in the button Add to List.

ONU List -- Slot 11

EPON-1

Select	Function	Auth.	Model Name	Alias Name	Mac Address	Registered	All Links #	Active Links	Power Save	Green	RF
<input type="checkbox"/> 1			FK-ONU-20L		b8-26-d4-02-bb-80	Yes	2	2	N	N	
<input type="checkbox"/> 2			FK-ONU-20L		b8-26-d4-02-e2-48	Yes	2	2	N	N	

3. The ONU Authorization page will be displayed.
4. Select the ONU(s) and click in the button Authorize.

ONU Authorization -- Slot 11

EPON-1

*You must set TFTP Server first When do import.
*You can see the result at the bottom after do import.

Select	Mac Address	Links #	Status	Mark	Authorization	Profile
<input type="checkbox"/> 1	b8-26-d4-02-bb-80	2	Registered		No	

*Neither Authorize, UnAuthorize nor Del ONU when ONU is registering.
 Authorize will check Link # and ONU Link number. If conflict, Mark field will be *.
 The number Authorization List is 64.
 Add ONU means that Add ONU to Authorization List.
 Del ONU means that Del ONU from Authorization List.
 Double click Select title field will select all entries. click Select title field will unselect all entries.

Parameter description:

- **Mac Address:** ONU MAC Address.
- **Links #** Number of provisioned links.
- **Status :** show the ONU status.
- **Mark:** Authorize will check Link # and ONU Link number. If conflict, Mark field will be *.
- **Authorization:** It include Yes and No. After ONU is authorized, ONU SLA can be enabled. You can select item with clicking Select field and click Authorize button. All ONU want to have service and you must let ONU be authorized first.
- **Profile:** field to inform the name of he configuration file that will be used as a profile.
- **Buttons**
 - Refresh:** Click to update the information showed on the table.
 - Authorize:** authorize the selected ONU(s).
 - UnAuthorize:** unauthorize the selected ONU(s).
 - Del ONU:** delete the from the list the selected ONU(s).
 - Save profile:** Click to upload the chosen config file from the TFTP server.
 - Import:** Click to import the chosen conig file to the selected ONUs.
- The table showed in the page with the column "MAc Address" and "Result" show the status of the profile import process.

3.3.4 IONU Digital I-O

The IONU Digital-IO is a list that shows only the ONU model FK-IONU-DS connected to each of the EPON ports. This model of Industrial ONU has digital signal inputs and outputs to monitor devices connected to it, as Emergency Phones, for example.

The column DI-4, from the table below, shows the status of the device.

Hang Off: The device is in standby.

Pick up: The device is operational.

To send a signal to wake up the connected device, select the ONU and click on the button "DO-1 Send Wakeup".

IONU Digital-IO Config -- Slot 11

ONU List EPON-1

ONU List EPON-2

ONU Auth. EPON-1

ONU Auth. EPON-2

IONU Digital-IO EPON-2

EPON-1

Refresh

DO-1 Send Wakeup

Auto-refresh ☐ 10 sec ▼

Select	Model Name	Alias Name	Mac Address	DI-4	DO-1 Count
<input type="checkbox"/> 1	FK-IONU-20/DS		00-40-c7-1c-60-f0	Pick Up	0

*Click Alias Name title field will sort by Alias Name. Click Mac Address title field will sort by Mac Address.
 DO-1 Count means that DO-1 Count for Send Wake Up.
 *IONU Digital-IO List display only when the OLT is set in IONU Digital-IO Polling

3.3.5 Slot Redundant

3.3.5.1 OLT Slot Redundant

Web interface

To configure the redundancy between slots in the web interface:

1. Click OLT Management , Slot Redundant then OLT Slot Redundant.
2. Select the group you want to configure by clicking on the group number.

OLT Slot Redundant

Group No	Status	Master	Slave	EPON-1	EPON-2	NNI-1	NNI-2	Sync. OLT
1	Disable	0	0	Off	Off	Off	Off	<div>Sync.</div>
2	Disable	0	0	Off	Off	Off	Off	<div>Sync.</div>
3	Disable	0	0	Off	Off	Off	Off	<div>Sync.</div>
4	Disable	0	0	Off	Off	Off	Off	<div>Sync.</div>
5	Disable	0	0	Off	Off	Off	Off	<div>Sync.</div>
6	Disable	0	0	Off	Off	Off	Off	<div>Sync.</div>
7	Disable	0	0	Off	Off	Off	Off	<div>Sync.</div>
8	Disable	0	0	Off	Off	Off	Off	<div>Sync.</div>

Save

Clear

*Note: After Enable OLT redundant, you must remember to sync OLT.
 *Sync button means config changed from Master to Slave.
 *If you want to keep redundant value,you had better Save Start.

3. Enable the Status of the group.
4. Define the number of the master slot.
5. Define the number of the Slave slot.
6. Select the ports that will be monitored. If any of the selected ports stops working the slave slot will change its state to ON.
7. Click Save.

OLT Slot Redundant

Group No	Status	Master	Slave	EPON-1	EPON-2	NNI-1	NNI-2	Sync. OLT
1	Disable	0	0	Off	Off	Off	Off	Sync.
2	Disable	0	0	Off	Off	Off	Off	Sync.
3	Disable	0	0	Off	Off	Off	Off	Sync.
4	Disable	0	0	Off	Off	Off	Off	Sync.
5	Disable	0	0	Off	Off	Off	Off	Sync.
6	Disable	0	0	Off	Off	Off	Off	Sync.
7	Disable	0	0	Off	Off	Off	Off	Sync.
8	Disable	0	0	Off	Off	Off	Off	Sync.

Group No	Status	Master	Slave	EPON-1	EPON-2	NNI-1	NNI-2
1	Enable ▼	1	2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Save Clear

OLT Slot Redundant

Group No	Status	Master	Slave	EPON-1	EPON-2	NNI-1	NNI-2	Sync. OLT
1	Enable	1	2	On	On	On	On	Sync.
2	Disable	0	0	Off	Off	Off	Off	Sync.
3	Disable	0	0	Off	Off	Off	Off	Sync.
4	Disable	0	0	Off	Off	Off	Off	Sync.
5	Disable	0	0	Off	Off	Off	Off	Sync.
6	Disable	0	0	Off	Off	Off	Off	Sync.
7	Disable	0	0	Off	Off	Off	Off	Sync.
8	Disable	0	0	Off	Off	Off	Off	Sync.

Save Clear

3.3.5.2 Slot Redundant Status

Web interface

To check the status of the Slot redundant configuration in the web interface.

1. Click OLT Management , Slot Redundant then Slot Redundant Status.

Slot Redundant Status				
Slot	Model Name	Group	EPON-1	EPON-2
1	FK-OLT-20/2	1	on	on
2	FK-OLT-20/2	1	off	off
3	FK-OLT-20/2		on	on
4	FK-OLT-20/2		on	on
5	FK-OLT-20/2		on	on
6	FK-OLT-20/2		on	on
7	FK-OLT-20/2		on	on
8	FK-OLT-20/2		on	on
9	FK-OLT-20		on	--
10	FK-OLT-20		on	--
11	FK-OLT-20/2		on	on
12	FK-OLT-20/2		on	on
13	FK-OLT-20/2		on	on
14	FK-OLT-20/2		on	on
15	FK-OLT-20		on	--
16				

Refresh

3.3.6 Subscriber View

The ONU subscriber view allows to see all ONUs connected to the Chassis. For the ONU to appear on the subscriber view, it must have the Alias name configured.

When using the subscriber view, it's possible to access all menus related to the selected ONU.

Web interface

To checkSubscriber view table in the web interface.

1. Click OLT Management then Subscriber View.

ONU Subscriber View									
Refresh Del Page 1									
Select	Function	Alias Name	ONU Mac Address	Slot	Epon	Location	Contact	Phone #	Description
•	Alias Name Port Config ONU Statistics ONU Information ONU Traffic Management ONU Green Pon IGMP Snooping Parameters Bridging Config ONU RSTP ONU Dynamic Table ONU Operations Loopback Test Logical Link List	ONU_Lab	b8-26-d4-02-bb-80	11	EPON-1	FISA	João	4141414141	Teste

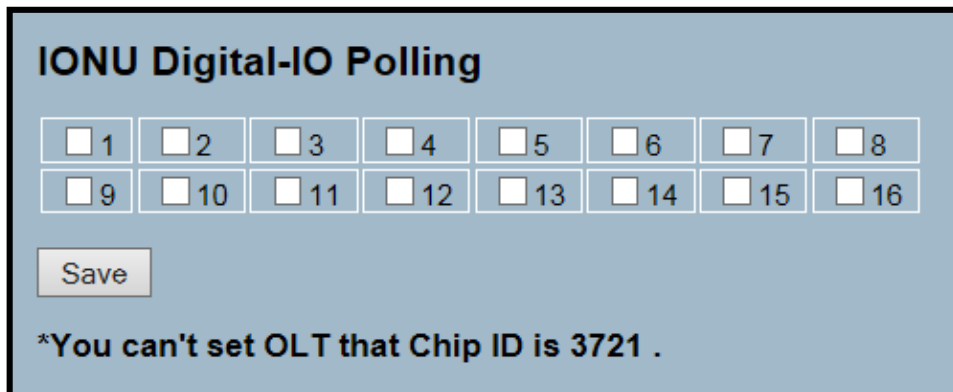
3.3.7 ONU Digital IO Pooling (only for FK-OLT-20/2)

The digital IOs are only available for the industrial ONUs models FK-IONU-10(20)/DS. For the OLT to identify this IONUs and allow the user to manage the digital signals, it's necessary to enable the pooling function in the OLT in which the ONUs will be connected.

Web interface

To checkenable the IONU Digital-IO Pooling in the web interface.

1. Click OLT Management then IONU Digital IO Pooling.
2. Select the OLTs.
3. Click Save.



IONU Digital-IO Pooling

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<input type="checkbox"/> 8
<input type="checkbox"/> 9	<input type="checkbox"/> 10	<input type="checkbox"/> 11	<input type="checkbox"/> 12	<input type="checkbox"/> 13	<input type="checkbox"/> 14	<input type="checkbox"/> 15	<input type="checkbox"/> 16

***You can't set OLT that Chip ID is 3721 .**

3.3.8 OLT Provision Wizard

Allows the configuration of the main parameters of the OLT by creating a profile, loading a profile or by using the default parameters.

Each OLT model has different parameters available for configuration. In both cases it's possible to only apply the parameters to an specific slot, save the configuration as a profile or execute the configuration and save a profile. To save or load a previous saved profile it's necessary to configure a TFTP Server.

3.3.8.1 FK-OLT-20

NEXT

FK-OLT-20 Provision Wizard

Select

Source Slot

Select one item from Select combo box and then click Load button.

Destination Slot

DBA Drop Down Weights

Level 0 (KBytes) : 0~256(default:0)	<input type="text" value="4"/>
Level 1 (KBytes) : 0~256(default:0)	<input type="text" value="4"/>

DBA Polling Rate

Level 0 : 0~256(default:15)	<input type="text" value="15"/>	* 65.5 us =
Level 1 : 0~256(default:30)	<input type="text" value="15"/>	* 65.5 us =
Level 2 : 0~256(default:60)	<input type="text" value="61"/>	* 65.5 us =

DBA Priority Range

Level 0 : 0~223(default:32)	<input type="text" value="32"/>
Level 1 : 0~223(default:128)	<input type="text" value="128"/>
Level 2 : 1~224(default:64)	<input type="text" value="64"/>

Level 0 + Level 1 + Level 2 <= 224

Advanced Bridging Config : General Setting

Age Limit(Units 8.75ms) : 0~32768(default:0 disable aging)	<input type="text" value="0"/>
Max Number of Shared Vians : 0~15(default:15)	<input type="text" value="15"/>
Downstream Frame Reset Age	<input type="checkbox"/>
MAC Learning overwrite	<input type="checkbox"/>
Discard Unknown MAC	<input type="checkbox"/>
Allow Vlan Tag on Simple Bridge	<input type="checkbox"/>

PREVIOUS ABANDON FINISH

FK-OLT-20 Porvision Setting

Slot=9

TFTP Server IP

☒ Execute The Provision

You approve the setting above.

☐ Save Profile

☐ Execute The Provision & Save Profile

3.3.8.2 FK-OLT-20/2

NEXT

FK-OLT-20/2 Provision Wizard

Select Load Default Source Slot 1 Load

Select one item from Select combo box and then click Load button.

Destination Slot 1

	EPON-1	EPON-2
	Ingress/DBA	
Level 1 (KBytes)	16	16
Level 2 (KBytes)	16	16
Level 3 (KBytes)	16	16
Level 4 (KBytes)	16	16
Level 5 (KBytes)	16	16
Level 6 (KBytes)	16	16
Level 7 (KBytes)	16	16
	Egress	
Level 1 (KBytes)	0	0
Level 2 (KBytes)	0	0
Level 3 (KBytes)	0	0
Level 4 (KBytes)	0	0
Level 5 (KBytes)	0	0
Level 6 (KBytes)	0	0
Level 7 (KBytes)	0	0

	NNI-1	NNI-2
	Egress	
Level 1 (KBytes)	0	0
Level 2 (KBytes)	0	0
Level 3 (KBytes)	0	0
Level 4 (KBytes)	0	0
Level 5 (KBytes)	0	0
Level 6 (KBytes)	0	0
Level 7 (KBytes)	0	0

PREVIOUS NEXT

FK-OLT-20/2 Provision Wizard

DBA Polling Rate

EPON-1		
Level 0	15	* 65.5 us = 982.5 us
Level 1	30	* 65.5 us = 1965 us
Level 2	60	* 65.5 us = 3930 us
Level 3	60	* 65.5 us = 3930 us
Level 4	60	* 65.5 us = 3930 us
Level 5	60	* 65.5 us = 3930 us
Level 6	60	* 65.5 us = 3930 us
Level 7	60	* 65.5 us = 3930 us

EPON-2		
Level 0	15	* 65.5 us = 982.5 us
Level 1	30	* 65.5 us = 1965 us
Level 2	60	* 65.5 us = 3930 us
Level 3	60	* 65.5 us = 3930 us
Level 4	60	* 65.5 us = 3930 us
Level 5	60	* 65.5 us = 3930 us
Level 6	60	* 65.5 us = 3930 us
Level 7	60	* 65.5 us = 3930 us

Aggregate Shaper

	EPON-1	EPON-2
	Ingress/DBA	
Aggregate Shaper	Disable	Disable
Max Bw (Kbps)	0	0
Max Burst (KBytes)	0	0
	Egress	
Aggregate Shaper	Disable	Disable
Max Bw (Kbps)	0	0
Max Burst (KBytes)	0	0

	NNI-1	NNI-2
	Egress	
Aggregate Shaper	Disable	Disable
Max Bw (Kbps)	0	0
Max Burst (KBytes)	0	0

OLT Bridging Config

Age Limit(Units 1ms) 0

Allow Vlan Tag on Simple Bridge ☐

PREVIOUS ABANDON FINISH

FK-OLT-20/2 Provision Setting

Slot=1

TFTP Server IP 0.0.0.0

☒ Execute The Provision You approve the setting above.

☐ Save Profile

☐ Execute The Provision & Save Profile

3.4 Security

3.4.1 AAA

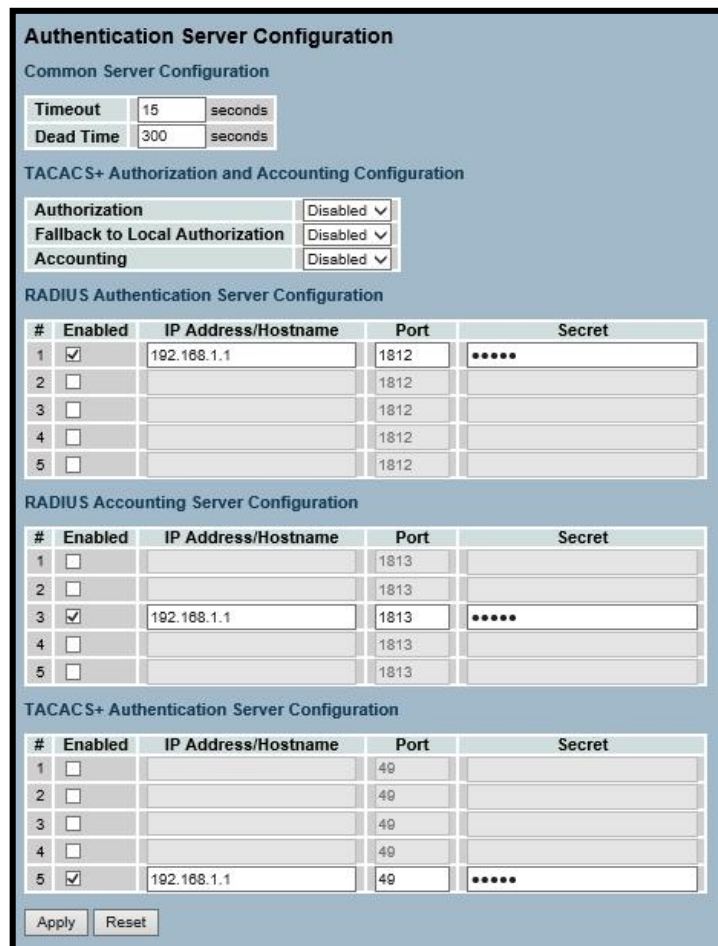
3.4.1.1 Configuration

This page allows you to configure the Authentication Servers.

Web interface

To configure Security in the web interface:

1. Click Security, AAA and Configuration.



Authentication Server Configuration

Common Server Configuration

Timeout: 15 seconds
Dead Time: 300 seconds

TACACS+ Authorization and Accounting Configuration

Authorization: Disabled
Fallback to Local Authorization: Disabled
Accounting: Disabled

RADIUS Authentication Server Configuration

#	Enabled	IP Address/Hostname	Port	Secret
1	<input checked="" type="checkbox"/>	192.168.1.1	1812	*****
2	<input type="checkbox"/>		1812	
3	<input type="checkbox"/>		1812	
4	<input type="checkbox"/>		1812	
5	<input type="checkbox"/>		1812	

RADIUS Accounting Server Configuration

#	Enabled	IP Address/Hostname	Port	Secret
1	<input type="checkbox"/>		1813	
2	<input type="checkbox"/>		1813	
3	<input checked="" type="checkbox"/>	192.168.1.1	1813	*****
4	<input type="checkbox"/>		1813	
5	<input type="checkbox"/>		1813	

TACACS+ Authentication Server Configuration

#	Enabled	IP Address/Hostname	Port	Secret
1	<input type="checkbox"/>		49	
2	<input type="checkbox"/>		49	
3	<input type="checkbox"/>		49	
4	<input type="checkbox"/>		49	
5	<input checked="" type="checkbox"/>	192.168.1.1	49	*****

Apply Reset

Parameter description:

- **Timeout:** The Timeout, which can be set to a number between 3 and 3600 seconds, is the maximum time to wait for a reply from a server.
If the server does not reply within this timeframe, we will consider it to be dead and continue with the next enabled server (if any).
RADIUS servers are using the UDP protocol, which is unreliable by design. In order to cope with lost frames, the timeout interval is divided into 3 subintervals of equal length. If a reply is not received within the subinterval, the request is transmitted again. This algorithm causes the RADIUS server to be queried up to 3 times before it is considered to be dead.
- **Dead Time:** The Dead Time, which can be set to a number between 0 and 3600 seconds, is the period during which the switch will not send new requests to a server that has failed to respond to a previous request. This will stop the switch from continually trying to contact a server that it has already determined as dead.
Setting the Dead Time to a value greater than 0 (zero) will enable this feature, but only if more than one server has been configured.

RADIUS Authentication Server Configuration

The table has one row for each RADIUS Authentication Server and a number of columns, which are:

- **#** : The RADIUS Authentication Server number for which the configuration below applies.
- **Enabled**: Enable the RADIUS Authentication Server by checking this box.
- **IP Address/Hostname**: The IP address or hostname of the RADIUS Authentication Server. IP address is expressed in dotted decimal notation.
- **Port** : The UDP port to use on the RADIUS Authentication Server. If the port is set to 0 (zero), the default port (1812) is used on the RADIUS Authentication Server.
- **Secret** : The secret - up to 29 characters long - shared between the RADIUS Authentication Server and the switch.

RADIUS Accounting Server Configuration

The table has one row for each RADIUS Accounting Server and a number of columns, which are:

- **#** : The RADIUS Accounting Server number for which the configuration below applies.
- **Enabled** : Enable the RADIUS Accounting Server by checking this box.
- **IP Address/Hostname**: The IP address or hostname of the RADIUS Accounting Server. IP address is expressed in dotted decimal notation.
- **Port**: The UDP port to use on the RADIUS Accounting Server. If the port is set to 0 (zero), the default port (1813) is used on the RADIUS Accounting Server.
- **Secret**: The secret - up to 29 characters long - shared between the RADIUS Accounting Server and the switch.

TACACS+ Authentication Server Configuration

The table has one row for each TACACS+ Authentication Server and a number of columns, which are:

- **#**: The TACACS+ Authentication Server number for which the configuration below applies.
- **Enabled**: Enable the TACACS+ Authentication Server by checking this box.
- **IP Address/Hostname**: The IP address or hostname of the TACACS+ Authentication Server. IP address is expressed in dotted decimal notation.
- **Port**: The TCP port to use on the TACACS+ Authentication Server. If the port is set to 0 (zero), the default port (49) is used on the TACACS+ Authentication Server.
- **Secret**: The secret - up to 29 characters long - shared between the TACACS+ Authentication Server and the switch.
- **Buttons**

Apply: Click to apply changes.

Reset: Click to undo any changes made locally and revert to previously saved values.

3.4.1.2 RADIUS Overview

This page provides an overview of the status of the RADIUS servers configurable on the Authentication configuration page.

Web interface

To check the status of the Radius servers in the web interface:

1. Click Security, AAA and RADIUS Overview.

RADIUS Authentication Server Status Overview		
#	IP Address	Status
1	0.0.0.0:1812	Disabled
2	0.0.0.0:1812	Disabled
3	0.0.0.0:1812	Disabled
4	0.0.0.0:1812	Disabled
5	0.0.0.0:1812	Disabled

RADIUS Accounting Server Status Overview		
#	IP Address	Status
1	0.0.0.0:1813	Disabled
2	0.0.0.0:1813	Disabled
3	0.0.0.0:1813	Disabled
4	0.0.0.0:1813	Disabled
5	0.0.0.0:1813	Disabled

Parameter description:

RADIUS Authentication Servers

- **#:** The RADIUS server number. Click to navigate to detailed statistics for this server.
- **IP Address:** The IP address and UDP port number (in <IP Address>:<UDP Port> notation) of this server.
- **Status:** The current status of the server. This field takes one of the following values:
Disabled: The server is disabled.
Not Ready: The server is enabled, but IP communication is not yet up and running.
Ready: The server is enabled, IP communication is up and running, and the RADIUS module is ready to accept access attempts.
Dead (X seconds left): Access attempts were made to this server, but it did not reply within the configured timeout. The server has temporarily been disabled, but will get re-enabled when the dead-time expires. The number of seconds left before this occurs is displayed in parentheses. This state is only reachable when more than one server is enabled.

RADIUS Accounting Servers

- **#:** The RADIUS server number. Click to navigate to detailed statistics for this server.
- **IP Address:** The IP address and UDP port number (in <IP Address>:<UDP Port> notation) of this server.
- **Status:** The current status of the server. This field takes one of the following values:
Disabled: The server is disabled.
Not Ready: The server is enabled, but IP communication is not yet up and running.
Ready: The server is enabled, IP communication is up and running, and the RADIUS module is ready to accept accounting attempts.
Dead (X seconds left): Accounting attempts were made to this server, but it did not reply within the configured timeout. The server has temporarily been disabled, but will get re-enabled when the dead-time expires. The number of seconds left before this occurs is displayed in parentheses. This state is only reachable when more than one server is enabled.
- **Buttons**
Auto-refresh: Check this box to refresh the page automatically. Automatic refresh occurs every 3 seconds.
Refresh: Click to refresh the page.

3.4.1.3 RADIUS Details

Web interface

To check the statistics for a particular RADIUS server in the web interface:

1. Click Security, AAA and RADIUS Details.

RADIUS Authentication Statistics			
Receive Packets		Transmit Packets	
Access Accepts	0	Access Requests	0
Access Rejects	0	Access Retransmissions	0
Access Challenges	0	Pending Requests	0
Malformed Access Responses	0	Timeouts	0
Bad Authenticators	0		
Unknown Types	0		
Packets Dropped	0		
Other Info			
IP Address		0.0.0.0:1812	
State		Disabled	
Round-Trip Time		0 ms	

RADIUS Accounting Statistics for Server #1			
Receive Packets		Transmit Packets	
Responses	0	Requests	0
Malformed Responses	0	Retransmissions	0
Bad Authenticators	0	Pending Requests	0
Unknown Types	0	Timeouts	0
Packets Dropped	0		
Other Info			
IP Address		0.0.0.0:1813	
State		Disabled	
Round-Trip Time		0 ms	

Parameter description:

RADIUS Authentication Statistics

The statistics map closely to those specified in RFC4668 - RADIUS Authentication Client MIB.

Use the server select box to switch between the backend servers to show details for.

- **Packet Counters**

RADIUS authentication server packet counter. There are seven receive and four transmit counters.

- **Other Info**

This section contains information about the state of the server and the latest round-trip time.

RADIUS Accounting Statistics

The statistics map closely to those specified in RFC4670 - RADIUS Accounting Client MIB.

Use the server select box to switch between the backend servers to show details for.

- **Packet Counters**

RADIUS accounting server packet counter. There are five receive and four transmit counters.

- **Other Info**

This section contains information about the state of the server and the latest round-trip time.

- **Buttons**

Auto-refresh: Check this box to refresh the page automatically. Automatic refresh occurs every 3 seconds.

Refresh: Click to refresh the page.

Clear: Flushes all system log entries.

3.4.2 Access Management

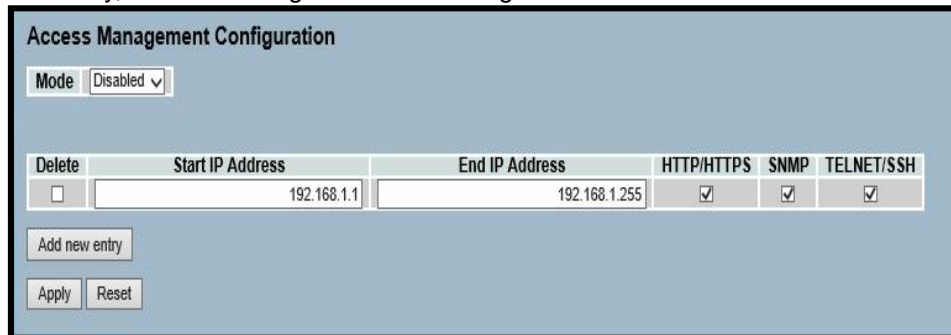
3.4.2.1 Configuration

Configure access management table on this page. The maximum entry number is **16**. If the application's type match any one of the access management entries, it will allow access to the switch.

Web interface

To configure the Access Management in the web interface:

1. Click Security, Access Management and Configuration.



Delete	Start IP Address	End IP Address	HTTP/HTTPS	SNMP	TELNET/SSH
<input type="checkbox"/>	192.168.1.1	192.168.1.255	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Parameter description:

- **Mode** : Indicates the access management mode operation. Possible modes are:
Enabled: Enable access management mode operation.
Disabled: Disable access management mode operation.
- **Delete**: Check to delete the entry. It will be deleted during the next save.
- **Start IP address**: Indicates the start IP address for the access management entry.
- **End IP address**: Indicates the end IP address for the access management entry.
- **HTTP/HTTPS**: Indicates that the host can access the switch from HTTP/HTTPS interface if the host IP address matches the IP address range provided in the entry.
- **SNMP**: Indicates that the host can access the switch from SNMP interface if the host IP address matches the IP address range provided in the entry.
- **TELNET/SSH**: Indicates that the host can access the switch from TELNET/SSH interface if the host IP address matches the IP address range provided in the entry.
- **Buttons**
Apply: Click to apply changes.
Reset: Click to undo any changes made locally and revert to previously saved values.

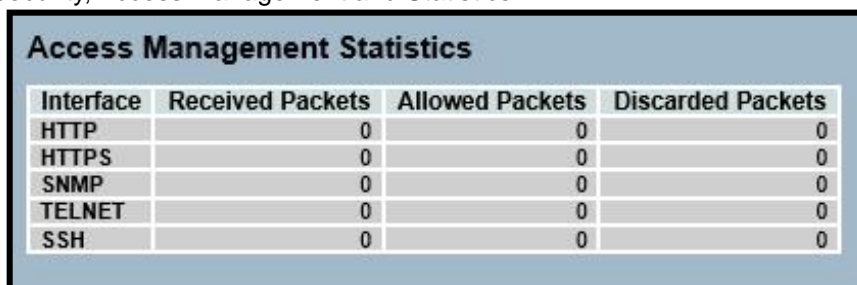
3.4.2.2 Statistics

This page provides statistics for access management.

Web interface

To check the Access Management Statistics in the web interface:

1. Click Security, Access Management and Statistics.



Interface	Received Packets	Allowed Packets	Discarded Packets
HTTP	0	0	0
HTTPS	0	0	0
SNMP	0	0	0
TELNET	0	0	0
SSH	0	0	0

Parameter description:

- **Interface**: The interface type through which the remote host can access the switch.
- **Received Packets**: Number of received packets from the interface when access management mode is enabled.

- **Allowed Packets:** Number of allowed packets from the interface when access management mode is enabled.
- **Discarded Packets:** Number of discarded packets from the interface when access management mode is enabled.
- **Buttons**
 - Auto-refresh:** Check this box to refresh the page automatically. Automatic refresh occurs every 3 seconds.
 - Refresh:** Click to refresh the page.
 - Clear:** Flushes all system log entries.

3.4.3 SSH

Configure SSH on this page.

Web interface

To configure SSH in the web interface:

1. Click Security, SSH.



Parameter description:

- **Mode:** Indicates the SSH mode operation. Possible modes are:
 - Enabled: Enable SSH mode operation.
 - Disabled: Disable SSH mode operation.
- **Buttons**
 - Apply:** Click to apply changes.
 - Reset:** Click to undo any changes made locally and revert to previously saved values.

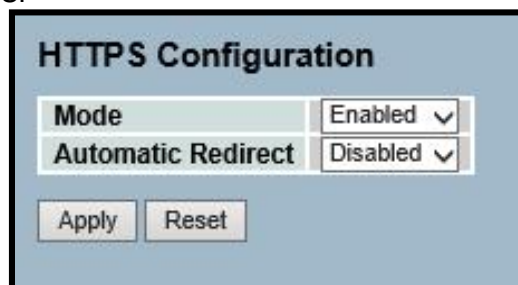
3.4.4 HTTPS

Configure HTTPS on this page.

Web interface

To configure HTTPS in the web interface:

1. Click Security, HTTPS.



Parameter description:

- **Mode:** Indicates the HTTPS mode operation. Possible modes are:
 - Enabled: Enable HTTPS mode operation.
 - Disabled: Disable HTTPS mode operation.
- **Automatic Redirect :** Indicates the HTTPS redirect mode operation. Automatically redirect web browser to HTTPS when HTTPS mode is enabled. Possible modes are:

Enabled: Enable HTTPS redirect mode operation.
Disabled: Disable HTTPS redirect mode operation.

- **Buttons**

Apply: Click to apply changes.

Reset: Click to undo any changes made locally and revert to previously saved values.

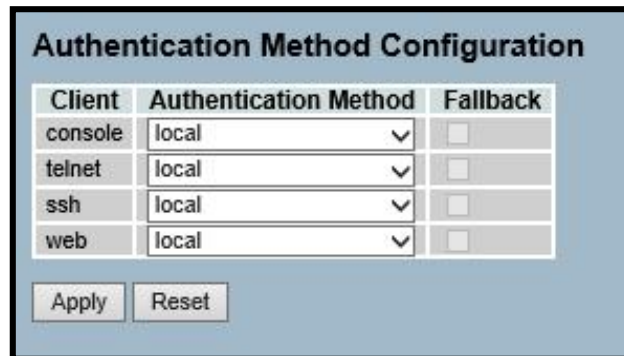
3.4.5 Auth Method

This page allows you to configure how a user is authenticated when he logs into the switch via one of the management client interfaces.

Web interface

To configure the Authentication Method in the web interface:

1. Click Security, Auth Method.



Client	Authentication Method	Fallback
console	local	<input type="checkbox"/>
telnet	local	<input type="checkbox"/>
ssh	local	<input type="checkbox"/>
web	local	<input type="checkbox"/>

Apply Reset

Parameter description:

- **Client:** The management client for which the configuration below applies.
- **Authentication Method:** Authentication Method can be set to one of the following values:
none : authentication is disabled and login is not possible.
local : use the local user database on the switch for authentication.
radius : use a remote RADIUS server for authentication.
tacacs+ : use a remote TACACS+ server for authentication.
- **Fallback:** Enable fallback to local authentication by checking this box.
If none of the configured authentication servers are alive, the local user database is used for authentication.
This is only possible if the Authentication Method is set to a value other than 'none' or 'local'.
- **Buttons**
Apply: Click to apply changes.
Reset: Click to undo any changes made locally and revert to previously saved values.

3.5 Maintenance

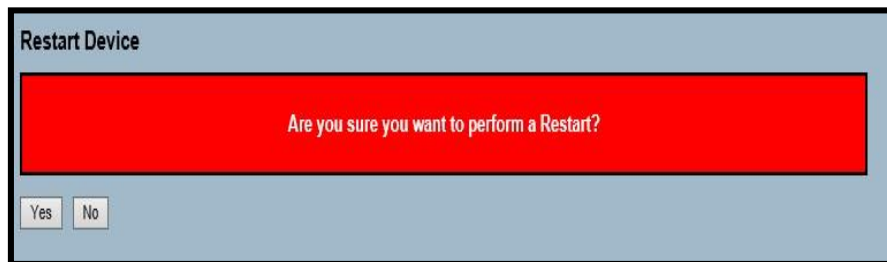
3.5.1 Restart Device

You can restart the switch on this page. After restart, the switch will boot normally.

Web interface

To restart the equipment in the web interface:

1. Click Maintenance, Restart Device.



Parameter description:

- **Buttons**
Yes: Click to restart device.
No: Click to return to the System Information page without restarting.

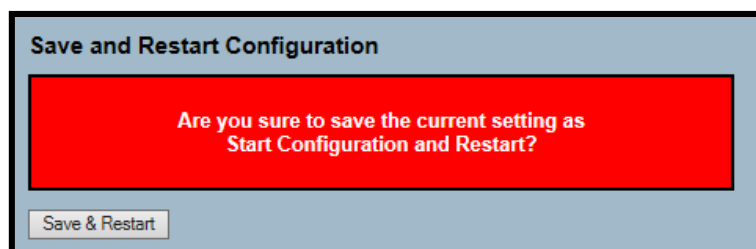
3.5.2 Save and Restart Device

You can use this option to save the configuration before restarting the chassis. After restart, the switch will boot normally.

Web interface

To Save and restart the equipment in the web interface:

1. Click Maintenance, Save and Restart Device.



Parameter description:

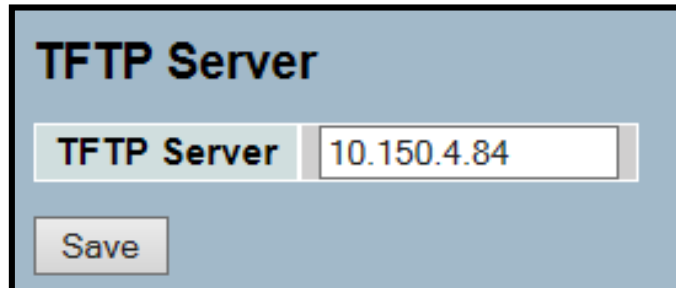
- **Buttons**
Save & Restart: Click to save the configuration the chassis and then restart the unit.

3.5.3 TFTP Server

Web interface

To configure the address of the TFTP Server in the web interface:

1. Click Maintenance, TFTP Server.



Parameter description:

- **Buttons**
Save: Click to save the configuration made.

3.5.3.1 Firmware

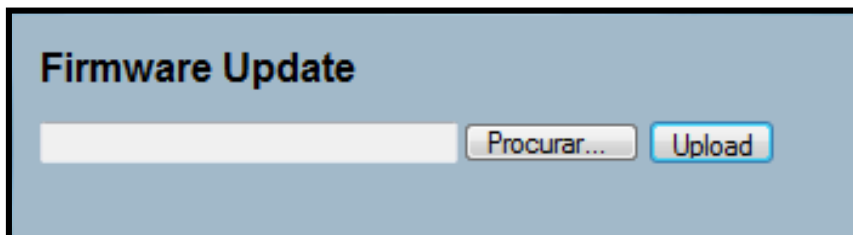
3.5.3.2 Firmware Upgrade

This page facilitates an update of the firmware controlling the switch.

Web interface

To upgrade the management board firmware in the web interface:

1. Click Maintenance, Firmware and Firmware Upgrade.
2. Select the file clicking on the "Procurar" button.
3. Click on Upload



After the software image is uploaded, a page announces that the firmware update is initiated. After about a minute, the firmware is updated and all managed switches in the stack restart. the switch restarts.

Warning: While the firmware is being updated, Web access appears to be defunct. The front LED flashes Green/Off with a frequency of 10 Hz while the firmware update is in progress. **Do not restart or power off the device at this time** or the switch may fail to function afterwards.

3.5.3.3 Firmware OLT Upgrade

Web interface

To upgrade the firmware of the OLT in the web interface:

1. Click Maintenance, Firmware and Firmware OLT Upgrade.
2. Select the file clicking on the "Procurar" button.
3. Define the OLTs to be upgraded by selecting the slot number.
4. Click on Upload
5. After the upgrading process is finished the message "Software Upgrade Successful" will appear.
6. Go back to the Firmware OLT Upgrade page, select the OLTs that were upgraded and reboot them by clicking on the "Reboot" button.

The screenshot shows the 'Firmware OLT Upgrade' web interface. It features a title bar, a file selection area with a 'Procurar...' button, and an 'Upload' button. Below these are 16 checkboxes arranged in two rows of eight, labeled 1 through 16. At the bottom is a 'Reboot' button.

3.5.3.4 Firmware ONU Upgrade

Web interface

To upgrade the ONU firmware in the web interface:

1. Click Maintenance, Firmware and Firmware ONU Upgrade.
2. Select the file clicking on the "Procurar" button.
3. Define the ONUs to be upgraded by selecting them on the list.
4. Click on Upload.
5. After the upgrading process is finished the message "Software Upgrade Successful" will appear.
6. Go back to the Firmware ONU Upgrade page, select the ONUs that were upgraded and reboot them by clicking on the "Reboot" button.

The screenshot shows the 'Firmware ONU Upgrade' web interface. It includes a title bar, a file selection area with a 'Procurar...' button, and an 'Upload' button. Below these are two dropdown menus: one for selecting a slot (currently showing '1') and another for selecting a model (currently showing 'EPON-1'). A table with columns for 'Select', 'Auth.', 'Model Name', 'Alias Name', 'Mac Address', 'Registered', 'All Links #', 'Active Links', 'Firmware', and 'Personality' is displayed. A 'Reboot' button is at the bottom. A note at the bottom states: 'Double click Select title field will select all entries. click Select title field will unselect all entries.'

Note: This page is also very useful to check the firmware version of the ONUs.

3.5.4 Save/Restore

3.5.4.1 Factory Defaults

You can reset the configuration of the stack switch on this page. Only the IP configuration is retained. The new configuration is available immediately, which means that no restart is necessary.

Web interface

To restore the Configuration to default in the web interface:

1. Click Maintenance, Save/Restore and Factory Defaults.



Parameter description:

Note: Restoring factory default can also be performed by pushing the reset button for more than 10 seconds

- **Buttons**

Yes: Click to reset the configuration to Factory Defaults.

No: Click to return to the System Information page without resetting the configuration.

3.5.4.2 Save Start

Web interface

To Save the current configuration as the startup configuration in the web interface:

1. Click Maintenance, Save/Restore and Save Start.



Parameter description:

- **Buttons**

Save: Click to save the configuration.

Save & Restart: Click to save the configuration and restart the device.

3.5.4.3 Save User

Web interface

To save the current configuration as backup configuration in the web interface:

1. Click Maintenance, Save/Restore and Save User.



Parameter description:

- **Buttons**
Save: Click to save the configuration.

3.5.4.4 Restore User

Web interface

To apply the backup configuration to the equipment in the web interface:

1. Click Maintenance, Save/Restore and Restore User.



Parameter description:

- **Buttons**
Save: Click to save the configuration.

3.5.5 Export/Import

3.5.5.1 Export Config

Web interface

To Export the current configuration in the web interface:

1. Click Maintenance, Export/Import and Export Config.
2. Click on Save Configuration
3. A window will appear in which the user will define where to save the file.



Parameter description:

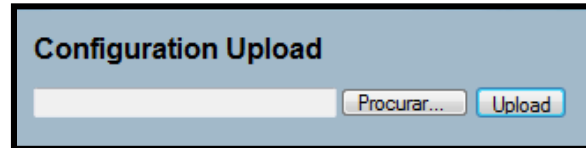
- **Buttons**
Save configuration: Click to save the configuration.

3.5.5.2 Import Config

Web interface

To import a configuration file in the web interface:

1. Click Maintenance, Export/Import and Import Config.
2. Select the file clicking on the button "Procurar".
3. Click on Upload.



Configuration Upload

3.5.5.3 Host/OLT/ONU Config Backup

If One time is set, Day=0 or 1. Day =0, Hour must \geq current time hour. Day=1, Hour must $<$ current time hour, that is, backup next day.

If Periodic is set, Day doesn't equal to 0.

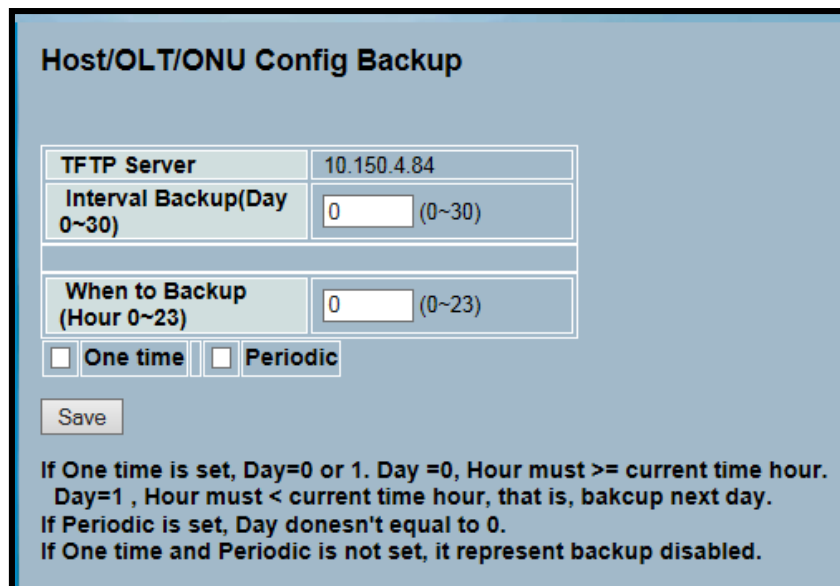
If One time and Periodic is not set, it represent backup disabled.

Web interface

To configure the Host/OLT/ONU Config Backup in the web interface:

1. Click Maintenance, Export/Import and Host/OLT/ONU Config Backup.
2. Define the backup interval in days.
3. Define when to back up in time.
4. Define if the backup will be done just this one time, by selecting the One time option, or if it is going to be a periodic action.

If One time is set, Day=0 or 1. Day =0, Hour must \geq current time hour. Day=1, Hour must be $<$ current time hour, that is, backup next day.



Host/OLT/ONU Config Backup

TFTP Server	10.150.4.84
Interval Backup(Day 0~30)	<input type="text" value="0"/> (0~30)
When to Backup (Hour 0~23)	<input type="text" value="0"/> (0~23)

☐ One time ☐ Periodic

If One time is set, Day=0 or 1. Day =0, Hour must \geq current time hour.
Day=1, Hour must $<$ current time hour, that is, bakcup next day.
If Periodic is set, Day doesn't equal to 0.
If One time and Periodic is not set, it represent backup disabled.

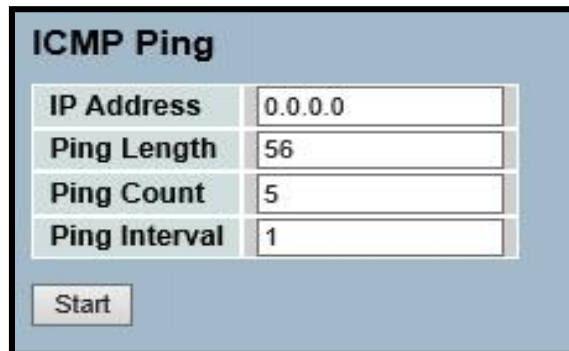
3.5.6 Diagnostics

3.5.6.1 Ping

Web interface

To use the IPv4 ICMP Ping diagnostic tool in the web interface:

1. Click Maintenance, Diagnostics and Ping.
2. Inform the IP address of the destination.
3. Inform the size of the ICMP packet.
4. Inform the number of packets that will be sent.
5. Inform the time interval between the packets.
6. Click on Start.

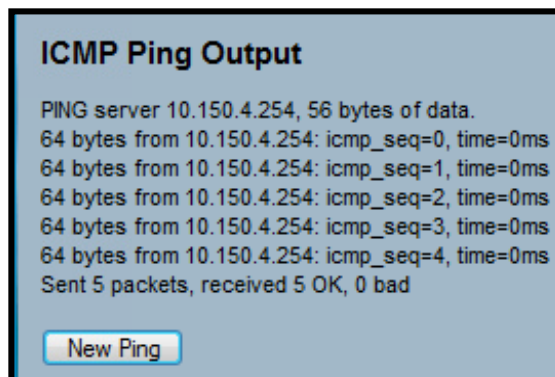


The screenshot shows a web interface titled "ICMP Ping". It contains four input fields: "IP Address" with the value "0.0.0.0", "Ping Length" with the value "56", "Ping Count" with the value "5", and "Ping Interval" with the value "1". Below these fields is a "Start" button.

Field	Value
IP Address	0.0.0.0
Ping Length	56
Ping Count	5
Ping Interval	1

Start

After the test is performed it's possible to ping another destination by clicking on the button "New Ping",



The screenshot shows a web interface titled "ICMP Ping Output". It displays the results of a ping test to the server 10.150.4.254. The output shows five successful pings, each with 64 bytes of data and a time of 0ms. At the bottom, it states "Sent 5 packets, received 5 OK, 0 bad". Below the output is a "New Ping" button.

```
PING server 10.150.4.254, 56 bytes of data.  
64 bytes from 10.150.4.254: icmp_seq=0, time=0ms  
64 bytes from 10.150.4.254: icmp_seq=1, time=0ms  
64 bytes from 10.150.4.254: icmp_seq=2, time=0ms  
64 bytes from 10.150.4.254: icmp_seq=3, time=0ms  
64 bytes from 10.150.4.254: icmp_seq=4, time=0ms  
Sent 5 packets, received 5 OK, 0 bad
```

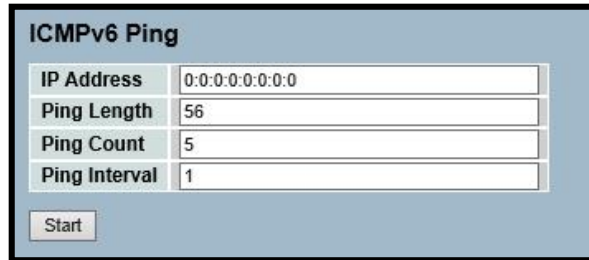
New Ping

3.5.6.2 Ping6

Web interface

To use the IPv6 ICMP Ping diagnostic tool in the web interface:

1. Click Maintenance, Diagnostics and Ping6.
2. Inform the IP address if the destination.
3. Inform the size of the ICMP packet.
4. Inform the number of packets that will be sent.
5. Inform the time interval between the packets.
6. Click on Start.



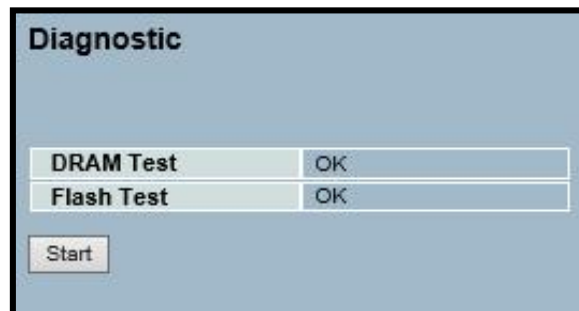
The screenshot shows a web interface titled "ICMPv6 Ping". It contains four input fields: "IP Address" with the value "0:0:0:0:0:0:0:0", "Ping Length" with the value "56", "Ping Count" with the value "5", and "Ping Interval" with the value "1". Below these fields is a "Start" button.

3.5.6.3 Diagnostic

Web interface

To use the Diag tool in the web interface:

1. Click Maintenance, Diagnostics and Diagnostic.
2. Click on Start.



The screenshot shows a web interface titled "Diagnostic". It contains two rows of test results: "DRAM Test" with a value of "OK" and "Flash Test" with a value of "OK". Below these rows is a "Start" button.

4 CLI Management

Refer to the section "2-3-4 Installing a Terminal Emulator for CLI Management" for the connection of the serial cable and the configuration of the terminal.

4.1 Login

The command-line interface (CLI) is a text-based interface. User can access the CLI through either a direct serial connection to the device or a Telnet session. The default values of FK-C32 chassis are listed below:

Username: admin

Password: <none>

After you login successfully, the prompt will be shown as “#” if you are the first login person; otherwise it may show “\$”. See the following two figures. The former means you behave as an administrator and have the access right of the system. As to the later, it means you behave as a guest and are only allowed to view the system without the permission to do any setting for this Converter Chassis.

```
Username: admin
Password:
Login in progress...
Type 'help' or '?' to get help.
Welcome to Furukawa Command Line Interface.
FK-C32#
```

```
Username: admin
Password:
Login in progress...
Type 'help' or '?' to get help.
Welcome to Furukawa Command Line Interface.
FK-C32$
```

4.2 Commands of CLI

To see the commands of the mode, please input “?” after the prompt, then all commands will be listed in the screen. All commands can be divided into two categories, including Global commands and Local commands. Global commands can be used wherever the mode you are. They are “end”, “exit”, “history”, “help”, “save start”, “save user”, “restore default”, “restore user” and “logout”. For more details, please refer to Section 4-3. Command instructions reside in the corresponding modes are local commands. The same command with the same command name may occur but perform totally different function in different modes.

For example, “show” in IP mode performs displaying the IP information; however, it performs displaying the system information in system mode.

FK-C32# ?

aaa	Authentication, Authorization, Accounting
access	Access management
account	User account management
auth	Authentication method
auto-logout	Configure time of inactivity before automatic logout
config-file	Export/Import configuration file from/to TFTP Server
diagnostic	Diagnostic tools
event	Trap event severity level
exit	Exit from current mode
firmware	Firmware upgrade
help	Show available commands
history	Show a list of previously run commands
https	Hypertext Transfer Protocol over Secure Socket Layer
ionudilist	Show ionu digital-io config list Of an OLT
ip	System internet protocol
ipv6	System IPv6 address
link	Enter into Logical Link Management
login-protect	Login Protect method
logout	Disconnect
olt	Enter into OLT Management
onu	Enter into ONU Management
onulist	Show onu list Of an OLT
privilege	Privilege level
reboot	Reboot the system
restore	Restore running configuration
save	Save running configuration
saveandrestart	Save running configuration
smtp	Email information
snmp	Simple Network Management Protocol
ssh	Secure Shell
syslog	Syslog configuration
system	System information
tftp	Tftp configuration
time	System time

4.3 Global Commands of CLI

Exit

Back to the previous mode.

When you enter this command, your current position would move back to the previous mode. If you use this command in the top mode, you are still in the position of the top mode.

Syntax:

exit

Parameter:

None.

Example:

```
FK-C32# system
FK-C32(system)# exit
FK-C32#
```

Help

To show available commands.

Some commands are the combination of more than two words. When you enter this command, the CLI would show the complete commands. Besides, the command would help you classify the commands between the local commands and the global ones.

Syntax:

help

Parameter:

None.

Example:

```
FK-C32# ip
FK-C32(ip)# help
Commands available:

dhcp                Enable/Disable DHCP client
dns-proxy           Enable/Disable DNS proxy
mgmt-vlan           Set the management VLAN ID
name-server         Set DNS IP address
setup              Set the IP address
show               Show ip information
```

Global commands:

auto-logout	Configure time of inactivity before automatic logout
exit	Exit from current mode
help	Show available commands
history	Show a list of previously run commands
ionudilist	Show ionu digital-io config list Of an OLT
logout	Disconnect
onulist	Show onu list Of an OLT
restore	Restore running configuration
save	Save running configuration
saveandrestart	Save running configuration

History

To show a list of previously run commands.

When you enter this command, the CLI would show a list of previously run commands which typed before.

The CLI supports the records up to 256 records. If no argument is typed, the CLI would list total records up to 256. If optional argument is given, the CLI would show the only last number of records, given by the argument.

Syntax:

history

Parameter:

None.

Example:

```
FK-C32(ip)# history
```

Command history:

0. time
1. save start
2. exit
3. system
4. show ?
5. exit
6. ip
7. help
8. history

Ionudilist

Syntax:**Ionudilist** <1-16>**Parameter:**

<1-16> SLOT number

Example:

```
FK-C32# ionudilist 2
index  onu mac           model name           DI-4      DO-1 Count
      alias name
=====
*IONU Digital-IO List display only when the OLT is set in IONU Digital-IO Polling
```

Logout

When you enter this command via Telnet connection, you would logout the system and disconnect. If you connect the system through direct serial port with RS-232 cable, when you enter this command, you would logout the system and back to the initial login prompt.

Syntax:**logout****Parameter:**

None.

Example:

```
FK-C32# logout
Username:
```

Auto-logout

To set up the auto logout time. When you idle over the configuration time, the system will auto logout.

Syntax:**auto-logout** <10-3600>**Parameter:**

<10-3600>: Time in seconds of inactivity before automatic logout

Example:

```
FK-C32# auto-logout 3600
FK-C32#
```

Onulist

Show onu list Of an OLT

Syntax:

onulist <1-16> <0-1>

Parameter:

<1-16> SLOT number

<0-1> 0:EPON-1, 1:EPON-2

Example:

```
FK-C32(system)# onulist 7 1
index  onu mac           Register All Links#  Active Link  Power Save  Green
=====
      1  b8-26-d4-00-21-a8  Yes       2           2           N           N
FK-C32(system)#
```

Restore default

When you enter this command via Telnet connection, you would logout the system and disconnect. If you connect the system through direct serial port with RS-232 cable, when you enter this command, you would logout the system and back to the initial login prompt.

Syntax:

restore default

restore default keep-ip

Parameter:

keep-ip : Restore configuration as factory default unless ip address.

Example:

```
FK-C32(system)# restore default keep-ip
FK-C32(system)#
```


Restore user

To restore the startup configuration as user defined configuration. If restoring default successfully, the CLI would prompt if reboot immediately or not. If you press Y or y, the system would reboot immediately; others would back to the CLI system. After restoring user-defined configuration, all the changes in the startup configuration would be lost. After rebooting, the entire startup configuration would replace as user defined one.

Syntax:

restore user

Parameter:

None.

Example:

```
FK-C32(system)# restore user
FK-C32(system)#
```

Save start

To save the current configuration as the startup one. When you enter this command, the CLI would save your current configuration into the non-volatile FLASH. If you want the configuration still works after rebooting, save the configuration using the command 'save stat'.

Syntax:

Save start

Parameter:

None.

Example:

```
FK-C32(system)# save start
FK-C32(system)#
```

Save user

To save the current configuration as the user-defined configuration. When you enter this command, the CLI would save your current configuration into the non-volatile FLASH as user-defined configuration.

Syntax:**Save user****Parameter:**

None.

Example:

```
FK-C32 (system) # save user
FK-C32 (system) #
```

Saveandrestart

To save start on the switch and then reboot the switch.

Syntax:**Saveandrestart****Parameter:**

None.

Example:

```
FK-C32(system)# saveandrestart
FK-C32# +M25PXX : Init device with JEDEC ID 0xC22018.
Luton26 board detected (VSC7425 Rev. B).

RedBoot(tm) bootstrap and debug environment [ROMRAM]
Non-certified release, version 1_12-Vitesse - built 19:19:16, Apr 18 2011

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GNU General Public License. You are welcome to change it and/or distribute
copies of it under certain conditions. Under the license terms, RedBoot's
source code and full license terms must have been made available to you.
Redboot comes with ABSOLUTELY NO WARRANTY.

Platform: VCore-III (MIPS32 24KEc) LUTON26
RAM: 0x80000000-0x84000000 [0x80021198-0x83fe1000 available]
FLASH: 0x40000000-0x40ffffff, 256 x 0x10000 blocks
== Executing boot script in 1.000 seconds - enter ^C to abort
RedBoot> fis load -d managed
Image loaded from 0x80040000-0x807b0c60
RedBoot> go
```

4.4 AAA of CLI

Table : AAA Commands

Command	Function
acc-radius	Configure RADIUS accounting Server
accounting	Configure Accounting mode
authorization	Configure Authorization mode
deadtime	Configure server dead time
fallback-author	Configure Authorization mode
radius	Configure RADIUS authentication server
show	Show AAA information
tacacs+	Configure TACACS+ authentication server
timeout	Configure server response timeout

acc-radius

To configure the RADIUS accounting server parameter.

Syntax:

acc-radius <index> <enable/disable> <ip-hostname> <0-65535> <Line>

Parameter:

- <index>** The RADIUS accounting Server index. The available value is from 1 to 5
- <disable/enable>** To enable or disable the RADIUS accounting service.
- <ip-hostname>** The RADIUS accounting server IP address or hostname.
- <0-65535>** The RADIUS accounting server UDP port. If the port is set to 0 (zero), then the default port (1813) is used.
- <LINE>** Secret shared with external accounting server. The Available value is up to 29 characters long.

EXAMPLE

```
FK-C32(aaa)# acc-radius 1 enable 192.168.2.22 65535 radius
FK-C32(aaa)# show config

Server Timeout      : 15 seconds
Server Dead Time    : 300 seconds

TACACS+ Authorization and Accounting Configuration:
Authorization        : Disable
Fallback to Local Authorization: Disable
Accounting           : Disable

RADIUS Authentication Server Configuration:
Server Mode          IP Address or Host Name      Port  Secret
-----
1      Disabled                               1812
2      Disabled                               1812
3      Disabled                               1812
4      Disabled                               1812
5      Disabled                               1812

RADIUS Accounting Server Configuration:
Server Mode          IP Address or Host Name      Port  Secret
-----
1      Enabled 192.168.2.22                    65535 radius
2      Disabled                               1813
3      Disabled                               1813
4      Disabled                               1813
5      Disabled                               1813

TACACS+ Authentication Server Configuration:
Server Mode          IP Address or Host Name      Port  Secret
-----
1      Disabled                               49
2      Disabled                               49
3      Disabled                               49
4      Disabled                               49
5      Disabled                               49
FK-C32(aaa)#
```

accounting

To enable or disable the RADIUS accounting operation mode.

Syntax:

accounting <enable/disable>

Parameter:

<disable> Globally disable Accounting operation mode.

<enable> Globally enable Accounting operation mode.

EXAMPLE

```
FK-C32 (aaa) # accounting enable
Server disconnect!
FK-C32 (aaa) # accounting disable
FK-C32 (aaa) #
```

NOTE: If you didn't connect the RADIUS Server already then the switch will show "Server disconnect".

authorization

To configure (enable/disable) RADIUS Authorization mode

Syntax

authorization <enable/disable>

Parameter

<disable> Globally disable Authorization operation mode.

<enable> Globally enable Authorization operation mode.

EXAMPLE

```
FK-C32 (aaa) # authorization enable
FK-C32 (aaa) #
```

deadtime

To configure the RADIUS server deadtime.

Syntax

deadtime <0-3600>

Parameter

<0-3600> Time that a server is considered dead if it doesn't answer a request. The available value is from 0 to 3600 second

EXAMPLE

```
FK-C32 (aaa) # deadtime 3600
Server disconnect!
FK-C32 (aaa) #
```

NOTE: If you didn't connect the RADIUS Server already then the switch will show "Server disconnect".

fallback-author

To configure the fallback function of RADIUS authorization with enable/disable if remote authorization fails.

Syntax

fallback-author <disable/ enable>

Parameter

<disable> Disable fallback function.

<enable> Enable fallback function if remote authorization fails.

EXAMPLE

```
FK-C32(aaa)# fallback-author enable
Server disconnect!
```

NOTE: If you didn't connect the RADIUS Server already then the switch will show "Server disconnect".

radius

To configure the RADIUS Server detail parameter

Syntax

radius <index> <enable/disable> <ip-hostname> <0-65535> <Line>

Parameter

- | | |
|-------------------------------|--|
| <index> | The RADIUS accounting Server index. The available value is from 1 to 5 |
| <disable/enable> | To enable or disable the RADIUS accounting service. |
| <ip-hostname> | The RADIUS accounting server IP address or hostname. |
| <0-65535> | The RADIUS accounting server UDP port. If the port is set to 0 (zero), then the default port (1813) is used. |
| <LINE> | Secret shared with external accounting server. The Available value is up to 29 characters long. |

EXAMPLE

```
FK-C32(aaa)# radius 1 enable 192.168.2.22 0 radius
Server disconnect!
```

NOTE: If you didn't connect the RADIUS Server already then the switch will show "Server disconnect".

show

To display the RADIUS AAA information

Syntax

Show <config>

Show <statistics> <1-5>

Parameter

- | | |
|---------------------------|---------------------------|
| <config> | To show AAA configuration |
| <statistics> | To show RADIUS statistics |
| <1-5> | The RADIUS Server Index |

EXAMPLE

```
FK-C32 (aaa)# show config
```

```
Server Timeout    : 15 seconds
```

```
Server Dead Time : 300 seconds
```

```
TACACS+ Authorization and Accounting Configuration:
```

```
Authorization          : Disable
```

```
Fallback to Local Authorization: Disable
```

```
Accounting             : Disable
```

```
RADIUS Authentication Server Configuration:
```

```
Server Mode      IP Address or Host Name      Port  Secret
```

```
-----
```

1	Disabled		1812	
2	Disabled		1812	
3	Disabled		1812	
4	Disabled		1812	
5	Disabled		1812	

RADIUS Accounting Server Configuration:

Server	Mode	IP Address or Host Name	Port	Secret
--------	------	-------------------------	------	--------

-----	-----	-----	-----	-----
-------	-------	-------	-------	-------

1	Disabled		1813	
2	Disabled		1813	
3	Disabled		1813	
4	Disabled		1813	
5	Disabled		1813	

TACACS+ Authentication Server Configuration:

Server	Mode	IP Address or Host Name	Port	Secret
--------	------	-------------------------	------	--------

-----	-----	-----	-----	-----
-------	-------	-------	-------	-------

1	Disabled		49	
2	Disabled		49	
3	Disabled		49	
4	Disabled		49	
5	Disabled		49	

FK-C32 (aaa)#

FK-C32 (aaa)# show statistics 1

Server #1 (0.0.0.0:1812) RADIUS Authentication Statistics:

Rx Access Accepts	0	Tx Access Requests	0
Rx Access Rejects	0	Tx Access Retransmissions	0
Rx Access Challenges	0	Tx Pending Requests	0
Rx Malformed Acc. Responses	0	Tx Timeouts	0
Rx Bad Authenticators	0		
Rx Unknown Types	0		
Rx Packets Dropped	0		
State:	Disabled		
Round-Trip Time:	0 ms		

Server #1 (0.0.0.0:1813) RADIUS Accounting Statistics:

Rx Responses	0	Tx Requests	0
Rx Malformed Responses	0	Tx Retransmissions	

tacacs+

To configure the TACACS+ authentication server detail parameter.

Syntax

tacacs+ <index> <enable/disable> <ip-hostname> <0-65535> <Line>

Parameter

<index>	The TACACS+ authentication Server index. The available value is from 1 to 5
<disable/enable>	To enable or disable the TACACS+ authentication service.
<ip-hostname>	The TACACS+ authentication server IP address or hostname.
<0-65535>	The TACACS+ authentication server UDP port. If the port is set to 0 (zero), then the default port (1813) is used.
<LINE>	Secret shared with external accounting server. The Available value is up to 29 characters long.

EXAMPLE

```
FK-C32 (aaa)# tacas+ 1 enable 192.168.2.22 0 tacacs  
Server disconnect!
```

NOTE: If you didn't connect the TACACS+ Server already then the switch will show "Server disconnect".

timeout

To configure server response timeout

Syntax

timeout <3-3600>

Parameter

<3-3600> The Timeout, which can be set to a number between 3 and 3600 seconds, is the maximum time to wait for a reply from a server.

EXAMPLE

```
FK-C32 (aaa)# timeout 360  
FK-C32 (aaa)#
```

4.5 Access Commands of CLI

Table : Access Commands

Command	Function
add	Add or modify access management entry
clear	Clear access management statistics
delete	Delete access management entry
mode	Configure the access management mode
show	Show access management information

add

Add or modify access management entry

Syntax

add <1-16> <ipv4/ipv6> <ip-address> <ip-address>

Parameter

<1-16> Entry index
<ipv4> IPv4 format address
<ipv6> IPv6 format address
<ip-address>Start IP address
<ip-address>End IP address
<all> All interface
<snmp> SNMP interface
<telnet> TELNET/SSH interface
<web> HTTP/HTTPS interface

EXAMPLE

```
FK-C32 (access)# add 1 ipv4 192.168.1.1 192.168.1.241 all
FK-C32 (access)# show config

Access Management Mode : Disabled

W: WEB/HTTPS
S: SNMP
T: TELNET/SSH

Index Start IP Address          End IP Address          W S T
-----
1      192.168.1.1              192.168.1.241          Y Y Y
FK-C32 (access)#
```

clear

Clear access management statistics

SYNTAX

Clear <statistics>

Parameter

<statistics> Clear access management statistics

EXAMPLE

```
FK-C32 (access)# clear statistics
FK-C32 (access)#
```

delete

Delete access management entry.

SYNTAX

Delete <1-16>

Parameter

<1-16> Entry index

EXAMPLE

```
FK-C32 (access)# delete 1
FK-C32 (access)# show config

Access Management Mode : Disabled

W: WEB/HTTPS
S: SNMP
T: TELNET/SSH

Index Start IP Address          End IP Address          W S T
-----
FK-C32 (access)#
```

mode

Configure the 802.1X mode

SYNTAX

mode <disable> <enable>

Parameter

disable Disable access management mode operation

enable Enable access management mode operation

EXAMPLE

```
FK-C32 (802.1X)# mode enable
FK-C32 (802.1X)#
```

show

Show 802.1X information

SYNTAX

show < config> < statistics>

Parameter

<config> Show access management configuration.

<Statistics> Show access management statistics.

EXAMPLE

```
FK-C32 (access)# show config

Access Management Mode : Enabled

W: WEB/HTTPS
S: SNMP
T: TELNET/SSH

Index Start IP Address          End IP Address          W S T
-----
```

```
FK-C32 (access)# show statistics

Client  Receive    Allow    Discard
-----
```

HTTP	0	0	0
HTTPS	0	0	0
SNMP	0	0	0
TELNET	0	0	0
SSH	0	0	0

4.6 Account Commands of CLI

Table : Account Commands

Command	Function
add	Add or modify user account
delete	Delete user account
show	Show user account information

add

Add or modify user account

SYNTAX

add <1-15> <word>

Parameter

<1-15> User privilege level

<WORD> Up to 32 characters to identify the user name

EXAMPLE

```
FK-C32 (account)# add 1 12
FK-C32 (account)# show
User Name          Privilege Level
-----
admin              15
12                 1
FK-C32 (account)#
```

delete

Delete user account

SYNTAX

delete <word>

Parameter

<WORD> Up to 32 characters to identify the user name

EXAMPLE

```
FK-C32 (account)# delete 12
FK-C32 (account)# show
User Name                Privilege Level
-----
admin                    15
FK-C32 (account)#
```

Show

Show user account information

SYNTAX**Show****EXAMPLE**

```
FK-C32 (account)# show
User Name                Privilege Level
-----
admin                    15
FK-C32 (account)#
```

4.7 Auth Commands of CLI

Table : Auth Commands

Command	Function
fallback	Configure local authentication fallback
method	Configure authentication method
show	Show Authentication configuration

fallback

Configure local authentication fallback

SYNTAX

Fallback < console> < ssh > < telnet > < web > /< disable >< disable >

Parameter

<console>	Settings for console
<ssh>	Settings for ssh
<telnet>	Settings for telnet
<web>	Settings for web
<disable>	Disable local authentication if remote authentication fails
<enable>	Enable local authentication if remote authentication fails

EXAMPLE

```
FK-C32 (auth)# fallback ssh disable
FK-C32 (auth)#
```

method

Configure authentication method

SYNTAX

method < console> < ssh > < telnet > < web > /< local> < none> < radius> < tacacs+>

Parameter

<Console>	Settings for console
<Ssh>	Settings for ssh
<telnet>	Settings for telnet
<web>	Settings for web
<local>	Use local authentication
<none>	Authentication disabled
<radius>	Use remote RADIUS authentication
<tacacs+>	Use remote TACACS+ authentication
<port-list>	Port list, available value is from 1 to 10B format:1,3
<ip-address>	IP address allowed for doing ARP request
<mac-address>	MAC address, format 0a-1b-2c-3d-4e-5f

EXAMPLE

```
FK-C32(auth)# method ssh local
FK-C32(auth)#
```

Show

Show Authentication configuration

SYNTAX**Show****EXAMPLE**

```
FK-C32(auth)# show

Client      Authentication Method  Local Authentication Fallback
-----
console    local                  Disabled
telnet     local                  Disabled
ssh        local                  Disabled
web        local                  Disabled
```

4.8 Config.File Commands of CLI

Table : Config-file Commands

Command	Function
backup-effect	Set backup config file effect on/off
backup-time	set backup-time
export	Export configuration file to tftp server
export-olt	Export OLT configuration file to TFTP server
export-onu	Export configuration file to TFTP server
import	Import configuration file to flash
import-olt	Import OLT configuration file from TFTP server
import-onu	Import configuration file from TFTP server
show	Show Host/OLT/ONU config backup

backup-effect

Set backup config file effect on/off

SYNTAX

backup-effect <0-1> / <0-1>

Parameter

<0-1> one-time: 1-on, 0-off

<0-1> periodic: 1-on, 0-off , one-time and periodic can't be set on simultaneously

EXAMPLE

```
FK-C32(config-file)# backup-effect 0 0
FK-C32(config-file)#
```

backup-time

Set backup-time

SYNTAX

backup-time <ip-address> /<0-30>

Parameter

<ip-address>	TFTP server IP address
<0-30>	interval backup(day 0~30):the interval between the two backup time
<0-23>	when to backup(hour 0~23):When backup config file

When Backup one time, interval backup =0 ,hour >= current time hour.
When Backup one time, interval backup =1 ,hour < current time hour.
When Backup periodic, interval backup !=0.

EXAMPLE

```
FK-C32(config-file)# backup-time 192.168.1.1 26 23
FK-C32(config-file)#
```

export

To run the export function.

SYNTAX

export < ip-address> <WORD>

Parameter

ip-address	The TFTP server ip address
<WORD>	Configuration file name

EXAMPLE

```
FK-C32(config-file)# export 192.168.1.100 testfile
FK-C32(config-file)#
```

export-olt

Export OLT configuration file to TFTP server

SYNTAX

export-olt < ip-address> /<WORD>/<1-16>

Parameter

<ip-address>	TFTP server IP address
<WORD>	Configuration file name
<1-16>	SLOT number

EXAMPLE

```
FK-C32 (config-file) # export-olt 192.168.1.100 textfile 16
FK-C32 (config-file) #
```

export-onu

Export configuration file to TFTP server

SYNTAX

export-onu < ip-address> /<1-16>/<mac-address>/<WORD>

Parameter

<ip-address>	TFTP server IP address
<1-16>	SLOT number
<mac-address>	ONU
<WORD>	Configuration file name

EXAMPLE

```
FK-C32 (config-file) # export-onu 192.168.1.100 16 00-00-00-00-00-00 testfile
FK-C32 (config-file) #
```

import

To run the import start function.

SYNTAX

import < ip-address> <WORD>

Parameter

ip-address	The TFTP server ip address.
<WORD>	Configuration file name

EXAMPLE

```
FK-C32 (config-file) # import 192.168.1.100 testfile
FK-C32 (config-file) #
```

import-olt

Import OLT configuration file from TFTP server

SYNTAX

import-olt <ip-address> /<WORD>/<1-16>/check

Parameter

<ip-address>	TFTP server IP address
<WORD>	Configuration file name
<1-16>	SLOT number
check	Check configuration file only

EXAMPLE

```
FK-C32(config-file)# import-olt 192.168.1.100 testfile 16 check
FK-C32(config-file)#
```

import-onu

Import configuration file from TFTP server

SYNTAX

import-onu <ip-address> /<1-16>/<mac-address>/<WORD>/ check

Parameter

<ip-address>	TFTP server IP address
<1-16>	SLOT number
<mac-address>	ONU
<WORD>	Configuration file name
check	Check configuration file only

EXAMPLE

```
FK-C32(config-file)# import-onu 192.168.1.100 16 00-00-00-00-00-00 testfile
FK-C32(config-file)#
```

Show

Show Authentication configuration

SYNTAX

Show backup-time

Parameter

backup-time: show backup-time

EXAMPLE

```
FK-C32(config-file)# show backup-time
TFTP Server                : 0.0.0.0
Interval backup time(day 0~30) : 26
When to backup (hour 0~23)   : 23
```


4.9 Diagnostic Commands of CLI

Table : Diagnostic Commands

Command	Function
diag	Diagnostic Ram, Flash if OK
ping	Uses the ICMP protocol's mandatory ECHO_REQUEST datagram to elicit an ICMP ECHO_RESPONSE from a host or gateway
ping6	Uses the ICMP protocol's mandatory ECHO_REQUEST datagram to elicit an ICMP ECHO_RESPONSE from a host or gateway

diag

Diagnostic Ram, Flash if OK

SYNTAX

diag

Parameter

<none>

EXAMPLE

```
FK-C32 (diagnostic) # diag
DRAM Test: OK
Flash Test: OK
```

ping

Uses the ICMP protocol's mandatory ECHO_REQUEST datagram to elicit an ICMP ECHO_RESPONSE from a host or gateway

SYNTAX

ping <ip-hostname> <60-1400>

Parameter

<ip-hostname> Hostname or IP address
<60-1400> Size of ICMP echo packet

EXAMPLE

```
FK-C32(diagnostic)# ping 192.168.1.6 60  
PING server 192.168.1.6
```

Ping6

Uses the ICMP protocol's mandatory ECHO_REQUEST datagram to elicit an ICMP ECHO_RESPONSE from a host or gateway

SYNTAX

Ping6 <ip-hostname> <60-1400>

Parameter

<ip-hostname> Hostname or IP address

<60-1400> Size of ICMP echo packet

EXAMPLE

```
FK-C32(diagnostic)# ping6 192.168.1.1 60  
PING6 server ::44ed:d80:e816:fc80
```

4.10 Event Commands of CLI

Table : event Commands

Command	Function
group	Configure trap event severity level
show	Show trap event configuration

group

Configure trap event severity level

SYNTAX

Group <group-name><port-list>

Parameter

<group-name> Trap event group name:
<0-7> Severity level
<0> Emergency: system is unusable
<1> Alert: action must be taken immediately
<2> Critical: critical conditions
<3> Error: error conditions
<4> Warning: warning conditions
<5> Notice: normal but significant condition
<6> Informational: informational messages
<7> Debug: debug-level messages-

EXAMPLE

```
FK-C32(event)# group Warm_Start 7
FK-C32(event)#
```

Show

Show Authentication configuration

SYNTAX

Show

EXAMPLE

FK-C32 (event) # show

Group Name	Severity Level
-----	-----
Access_Mgmt	Info
Cold_Start	Warning
Config_Info	Notice
Dying_Gasp_Power_Failure	Info
EPON No Links Discovery	Info
EPON_Link_Down	Info
EPON_Link_Up	Info
Fan Abnormal	Info
Fan Normal	Info
Firmware_Upgrade	Info
Import_Export	Info
Jumbo_Frame_Received_Error	Info
Key_Exchange_Failure	Info
Login	Warning
Login Protect	Info
Logout	Info
Loopback	Info
MAC_learning_table_overflow	Info
Mgmt_IP_Change	Info
NNI_Link_Down	Info
NNI_Link_Up	Info
Number_of_Links_Exceeded	Info
OLT Insert	Info
ONU_Power_Abnormal	Info
Passwd_Change	Info
Port_Security	Warning
Power Abnormal	Info
Power Insert	Info
Power Normal	Info
Power Remove	Info
Queue_Overflow	Info
Standard_Dying_Gasp	Info
Standard_Link_Fault	Info

```
Temperature Normal          Info
Thermal_Protect             Info
UNI_Link_Down              Info
UNI_Link_Up                Info
Voltage Abnormal            Info
Voltage Normal              Info
Warm_Start                  Warning
FK-C32 (event)#telnet      local          Disabled
ssh      local              Disabled
web      local              Disabled10B    Disabled
```

4.11 Firmware Commands of CLI

Table :Firmware Commands

Command	Function
Oltreboot	Reset(Reboot) OLT
oltupgrade	Upgrade OLTs firmware
onureboot	reset ONUs
onuupgrade	Upgrade ONUs firmware
show	Show ONUs Information command
upgrade	Upgrade system firmware

oltreboot

Reset(Reboot) OLT

SYNTAX

oltreboot <olt-list>

Parameter

<olt-list> : SLOT number

EXAMPLE

```
FK-C32(firmware)# oltreboot 7
FK-C32(firmware)#
```

oltupgrade

Upgrade OLTs firmware

SYNTAX

oltupgrade <ip-hostname> / <WORD> / <olt-list>

Parameter

<ip-hostname> TFTP server ip address or hostname

<WORD> Firmware image file name

<olt-list> SLOT number

EXAMPLE

```
FK-C32(firmware)# oltupgrade 192.168.1.100 testfile 7
FK-C32(firmware)#
```

onureboot

Reset ONUs

SYNTAX

onureboot <1-16> / <epon-1> or <epon-2> /<onu-list>

Parameter

<1-16> SLOT number

<epon-1> Port: epon-1

<epon-2> Port: epon-2

<onu-list> ONUs range : available from 1 to 64.

EXAMPLE

```
FK-C32(firmware)# onureboot 7 epon-1 30
FK-C32(firmware)#
```

onuupgrade

Upgrade ONUs firmware

SYNTAX

onuupgrade <ip-hostname> / <WORD> / <1-16> / <epon-1> or <epon-2> /<onu-list>

Parameter

<ip-hostname> TFTP server ip address or hostname

<WORD> Firmware image file name

<1-16> SLOT number

<epon-1> Port: epon-1

<epon-2> Port: epon-2

<onu-list> ONUs range : available from 1 to 64.

EXAMPLE

```
FK-C32(firmware)# onuupgrade 192.168.1.100 testfile 7 epon-1 30
FK-C32(firmware)#
```

show

Show ONUs Information command

SYNTAX

show <1-16> / <epon-1> or <epon-2>

Parameter

<1-16> SLOT number

<epon-1> Port: epon-1

<epon-2> Port: epon-2

EXAMPLE

```
FK-C32(firmware)# show 7 epon-1
No active onu to upgrade.
FK-C32(firmware)#
```

upgrade

Upgrade system firmware

SYNTAX

firmware <ipv6-address>/< ip-hostname> / <WORD>

Parameter

<ipv6-address> TFTP server ipv6 address IPv6 address is in 128-bit records represented as eight fields of up to four hexadecimal digits with a colon separates each field (:).For example, 'fe80::215:c5ff:fe03:4dc7'. The symbol '::' is a special syntax that can be used as a shorthand way of representing multiple 16-bit groups of contiguous zeros; but it can only appear once. It also used a following legally IPv4 address. For example, '::192.1.2.34'

<ip-hostname> TFTP server ip address or hostname

<WORD> Firmware image file name

EXAMPLE

```
Switch(firmware)# upgrade 192.168.1.100 2300.img
Switch(dhcp-snooping)#
```


4.12 Https Commands of CLI

Table : Https Commands

Command	Function
mode	Configure the HTTPS mode
redirect	Configure the HTTPS redirect mode
show	Show HTTPS configuration

mode

Configure the HTTPS mode

SYNTAX

mode<disable> or <enable>

Parameter

Disable Disable HTTPS mode operation

enable Enable HTTPS mode operation

EXAMPLE

```
FK-C32 (https) # mode disable
FK-C32 (https) #
```

redirect

Configure the HTTPS redirect mode

SYNTAX

Redirect <disable>or<enable>

Parameter

disable Disable HTTPS redirect mode operation

enable Enable HTTPS redirect mode operation

EXAMPLE

```
FK-C32 (https) # redirect disable
FK-C32 (https) #
```

show

Show HTTPS configuration

SYNTAX

Show

EXAMPLE

```
FK-C32 (https) # show
HTTPS Mode      : Enabled
HTTPS Redirect Mode : Enabled
FK-C32 (https) #
```

4.13 IP Commands of CLI

Table : ip Commands

Command	Function
dhcp	Enable/Disable DHCP client
dns-proxy	Enable/Disable DNS proxy
mgmt-vlan	Set the management VLAN ID
name-server	Set DNS IP address
setup	Set the IP address
show	Show ip information

dhcp

Enable/Disable DHCP client

SYNTAX

Dhcp <disable>or<enable>

Parameter

disable Disable DHCP client

enable Enable DHCP client

EXAMPLE

```
FK-C32(ip)# dhcp enable
FK-C32(ip)#
```

dns-proxy

Enable/Disable DNS proxy

SYNTAX

dns-proxy <disable>or<enable>

Parameter

disable Disable DHCP client

enable Enable DHCP client

EXAMPLE

```
FK-C32(ip)# dns-proxy enable
FK-C32(ip)#
```

mgmt-vlan

Set the management VLAN ID

SYNTAX

mgmt-vlan <1-4094>

Parameter

<1-4094> Management VLAN ID, available value is from 1 to 4094s.

EXAMPLE

```
FK-C32(ip) # mgmt-vlan 1
FK-C32(ip) #
```

name-server

Set DNS IP address

SYNTAX

name-server <ip-address>

Parameter

<ip-address> DNS IP address

EXAMPLE

```
FK-C32(ip) # name-server 168.95.1.1
FK-C32(ip) #
```

Setup

Set the IP address

SYNTAX

Setup <ip-address>/<ip-mask>/<ip-address>

Parameter

<ip-address> IP address

<ip-mask> IP subnet mask

<ip-address> Gateway IP address

EXAMPLE

```
FK-C32(ip) # setup 192.168.1.100 255.255.255.0 192.168.1.254
FK-C32(ip) #
```

show

Show ip information

SYNTAX

Show

EXAMPLE

```
FK-C32(ip)# show
DHCP Client      : Enabled
Active Configuration : Static
IP Address       : 192.168.1.100
Subnet Mask      : 255.255.255.0
Gateway          : 192.168.1.254
DNS Server       : 168.95.1.1
SNTP Server
```

4.14 IPV6 Commands of CLI

Table : IPV6 Commands

Command	Function
autoconfig	Configure IPv6 autoconfig mode
setup	Set the IPv6 address
show	Show IPv6 information

autoconfig

Configure IPv6 autoconfig mode

SYNTAX

Autoconfig <disable>or<enable>

Parameter

disable Disable autoconfig mode

enable Enable autoconfig mode

EXAMPLE

```
FK-C32(ipv6) # autoconfig disable
FK-C32(ipv6) #
```

Setup

Set the IPv6 address

SYNTAX

Setup <ipv6-address>

Setup <ipv6-address>/<1-128>

Setup <ipv6-address>/<1-128>/<ipv6-address>

Parameter

<ipv6-address> Gateway IPv6 address IPv6 address is in 128-bit records represented as eight fields of up to four hexadecimal digits with a colon separates each field (:). For example, 'fe80::215:c5ff:fe03:4dc7'. The symbol '::' is a special syntax that can be used as a shorthand way of representing multiple 16-bit groups of contiguous zeros; but it can only appear once. It also used a following legally IPv4 address. For example, '::192.1.2.34'

<1-128> IPv6 prefix

EXAMPLE

```
FK-C32 (ipv6)# setup ::192.168.1.41 1
FK-C32 (ipv6)#
```

show

Show ip information

SYNTAX

Show <config>

Show <current>

Parameter

<config>	Show IPv6 configuration
<current>	Show IPv6 current information

EXAMPLE

```
FK-C32(ipv6)# show config
Auto Configuration : Disabled
Address           : ::c0a8:0101
Prefix            : 96
Gateway           : ::

FK-C32(ipv6)#
```

```
FK-C32(ipv6)# show current

Active Configuration for IPv6: (Static with Stateless)
Link-Local Address : fe80002::6082:cdb9:19ab:c0e2
Address            : ::c0a8:0101
Prefix             : 96
Gateway            : ::

FK-C32(ipv6)#
```

4.15 LINK Commands of CLI

Table : LINK Commands

Command	Function
bm	Enter into Link Bridge Mode
keytimer	Set Key Exchange Timer
link-block	Deregister and Prevent Link Registering
link-unblock	Recover from Blocking
show	Show Logical Link Information command
sla	Enter into Link SLA
sta	Enter into Link Statistic Information Management

keytimer

Set Key Exchange Timer

SYNTAX

keytimer <1-16>/<mac-address>/<0-65535>

Parameter

<1-16>	SLOT number
<mac-address>	LINK
<0-65535>	Key Exchange Timer

EXAMPLE

```
FK-C32(link)# keytimer 16 00-00-00-00-00-00 1000
The Mac not exist
FK-C32(link)#
```

link-block

Deregister and Prevent Link Registering

SYNTAX

link-block <1-16>/<mac-address>

Parameter

<1-16>	SLOT number
<mac-address>	LINK

EXAMPLE

```
FK-C32(link)# link-block 7 00-00-00-00-00-00
The Mac not exist
FK-C32(link)#
```

link-unblock

Recover from Blocking

SYNTAX

link-unblock <1-16>/<mac-address>

Parameter

<1-16>	SLOT number
<mac-address>	LINK

EXAMPLE

```
FK-C32(link)# link-unblock 7 00-00-00-00-00-00
The Mac not exist
FK-C32(link)#
```

show

Show Logical Link Information command

SYNTAX

show < block-links >/<1-16>

show < **keytimer** >/<1-16>/<mac-address>

Parameter

block-links	Show Block Links Of An OLT
keytimer	Show Key Exchange Timer
<1-16>	SLOT number
<mac-address>	LINK

EXAMPLE

```
FK-C32(link)# show block-links 7
No.  Link Label
=====

FK-C32(link)#

FK-C32(link)# show keytimer 7 00-00-00-00-00-00
Id Unknown
FK-C32(link)#
```

bm

Enter into Link Bridge Mode

SYNTAX

bm

EXAMPLE

```
FK-C32(link)# bm
FK-C32(bm)#
```

Table : LINK – BM Commands

Command	Function
apply	Apply Bridge Mode Template
del	Del Link Bridge Mode command
editmp	Edit function
hint	Hint command
show	Show Link command
showtmp	Show function

apply

Apply Bridge Mode Template

SYNTAX

apply < brdgmde > /<0-4> /<1-16> /<0-1> /<mac-address>

Parameter

brdgmde	Apply Bridge Mode template
<0-4>	template no: 0~ 4
<1-16>	SLOT number
<0-1>	0: Epon-1, 1: Epon-2
<mac-address>	Bridge Mode Value

EXAMPLE

```
FK-C32 (bm) # apply brdgmde 0 16 0 00-00-00-00-00-00
The Mac not exist
FK-C32 (bm) #
```

del

Del Link Bridge Mode command

SYNTAX

```
del < brdgmde >/<1-16>/<0-1>/<mac-address>
del <vlan-tag >/<1-16>/<mac-address>/<1-4094>
del <vlan-tag >/<1-16>/<mac-address>/<1-4094>/ <1-4094>
```

Parameter

brdgmde	Apply Bridge Mode template
vlan-tag	Del Transparent Vlan Tag for OLT 3721
<1-16>	SLOT number
<0-1>	0: Epon-1, 1: Epon-2
<mac-address>	Bridge Mode Value
<1-4094>	min vlan

EXAMPLE

```
FK-C32 (bm) # del brdgmde 16 0 00-00-00-00-00-00
Out Of Range
FK-C32 (bm) #

FK-C32 (bm) # del vlan-tag 16 00-00-00-00-00-00 1000 1000
OLT 3723 does not support del vlan-tag
FK-C32 (bm) #
```

editmp

Apply Bridge Mode Template

SYNTAX

```
editmp <brdgallid>/<0-4>/<mac-address>
editmp <brdgmde >/<0-4>/<0-15>
editmp <brdgoption >/<0-4>/<0-3072>/<0-1>
editmp <brdgoption >/<0-4>/<0-3072>/<0-1>/<0-1>
editmp <pritable >/<0-4>/<0-8>/<0-7>
editmp <privlan>/<0-4>/<1-4095>/<0-7>/<0-7>/<0-7>/<0-1>/<0-1>
editmp <vlan>/<0-4>/<1-4095>/<0-4095>
```

PARAMETER

brdgallid	Edit Bridge another Llid in Bridge Mode template
brdgmde	Edit Bridge Mode in Bridge Mode template
brdgoption	Edit Bridge Option in Bridge Mode template
pritable	Edit Priority Table in Bridge Mode template
privlan	Edit priority vlan in Bridge Mode template
vlan	Edit vlan in Bridge Mode template
<0-4>	template no: 0~ 4
<mac-address>	Another Llid mac address
<0-15>	Bridge Mode Value: 0:Simple Bridged, 1:Dedicated Single VLAN, 2:Dedicated Double VLAN, 3:Shared VLAN, 4:Transparent VLAN, 6:Cross Connect, OLT 3721 not support 7:Priority VLAN, 8:Priority Remapping Single VLAN, 9:Priority Remapping Double VLAN, 10:Priority Remapping Shared VLAN, 11:Priority Shared VLAN, 13:Transparent Priority Shared VLAN, 14:Trans. Shared VLAN w/Bcast, 15:Double Tagged Shared VLAN
<0-1>	0: NNI-1, 1: NNI-2
<0-3072>	Entry Limit

- <0-1>** mac overwrite, it is used in simple, shared, priority remapping shared, priority shared, trans. pri. shared, trans. shared w/bcast, double tagged shared vlan. 0: disable, 1: enable
- <0-1>** discard unknown mac, it is used in simple, shared, priority remapping shared, priority shared, trans. pri. shared, trans. shared w/bcast, double tagged shared vlan. 0: disable, 1: enable
- <0-8>** item: Priority 0~ 7: 0~ 7, default output cos: 8
- <0-7>** item value: cos 0~ 7
- <1-4095>** Vlan Tag
- <0-7>** Upstream Cos
- <0-7>** Max Tos/Cos
- <0-7>** Min Tos/Cos
- <0-1>** Using Cos(0)/Tos(1)
- <0-1>** Non-IP
- <0-4095>** upcos|max vlan tag: if transparent vlan then using max vlan tag. if others then using upcos.

EXAMPLE

```
FK-C32 (bm) # editmp brdgallid 0 00-00-00-00-00-00
Another Llid must be used for Cross-Connect
FK-C32 (bm) #

FK-C32 (bm) # editmp brdgmode 0 7 0
FK-C32 (bm) #

FK-C32 (bm) # editmp brdgoption 0 1000 0 0
FK-C32 (bm) #

FK-C32 (bm) # editmp pritable 0 8 7
Priority table is use for Priority Remapping Single Vlan, Priority
Remapping Double Vlan, Priority Remapping Shared Vlan
FK-C32 (bm) #

FK-C32 (bm) # editmp privlan 0 1000 7 7 1 0 0
FK-C32 (bm) #

FK-C32 (bm) # editmp vlan 0 1000 1000
using privlan command
FK-C32 (bm) #
```

hint

Hint command

SYNTAX

hint < brdgmode >

Parameter

brdgmode Apply Bridge Mode template

EXAMPLE

```
FK-C32 (bm) # hint brdgmde

      Action                               Value
-----
Simple Bridged                           :    0
Dedicated Single VLAN                     :    1
Dedicated Double VLAN                     :    2
Shared VLAN                              :    3
Transparent VLAN                          :    4
Priority VLAN                             :    7
Priority Remapping Single VLAN             :    8
Priority Remapping Double VLAN             :    9
Priority Remapping Shared VLAN             :   10
Priority Shared VLAN                       :   11
Transparent Priority Shared VLAN           :   13
Transparent Shared VLAN with Broadcast    :   14
Double Tagged Shared VLAN                 :   15

OLT 3721 does not support Cross Connect

FK-C32 (bm) #
```

show

Show Link command

SYNTAX

show < brdgmde >/<1-16>/<0-1>/<mac-address>

Parameter

brdgmde	Apply Bridge Mode template
<1-16>	SLOT number
<0-1>	0: Epon-1, 1: Epon-2
<mac-address>	link mac address

EXAMPLE

```
FK-C32 (bm) # show brdgmde 7 0 00-00-00-00-00-00

Bridge Mode is not set.

FK-C32 (bm) #
```

showtmp

Show Link command

SYNTAX**showtmp** < brdgmde >/<0-4>**Parameter**

brdgmde	Apply Bridge Mode template
<0-4>	template no: 0~ 4

EXAMPLE

```
FK-C32 (bm) # showtmp brdgmde 0
mode          : Priority VLAN
entry limit   : 1000
Dest. NNI     : NNI-1
Mac Overwrite : disable
Discard Unknown Mac : disable
another Llid   :
network vid    : 1000
upcos         : 7
maxtos/cos    : 7
mintos/cos    : 1
using cos/tos  : cos
non-ip        : no
Mac Overwrite can be set when Bridge Mode is Simple, Shared, Priority
Remapping Shared, Priority Shared, Trans. Pri. Shared, Trans. Shared
w/BCast, Double Tagged Shared Vlan
FK-C32 (bm) #
```

sla

Enter into Link SLA

SYNTAX**sla**

EXAMPLE

```
FK-C32(link)# sla
FK-C32(sla)#
```

Table : LINK – SLA Commands

Command	Function
set	Set Link command
show	Show Link command

set

Set Link command

SYNTAX

```
set <dbaparam>/ <1-16>/<0-1>/<mac-address>/<0-1>/<0-7>
set <dbaparam3721>/ <1-16>/<0-1>/<mac-address>/<0-1>/<1-511>/<1-511>
set <dbaparam3721>/ <1-16>/<0-1>/<mac-address>/<0-1>/<1-511>/<1-511>/<0-255>/<0-1>
set <downesla>/ <1-16>/<0-1>/<mac-address>/<0-1>/ <0-1000000>/<1-256>/<0-7>/<2-32>
set <mcastsla>/ <1-16>/<0-1>/<mac-address>/ <0-1000000>/<1-256>/<0-7>/<2-32>
set <mcastsla3721>/ <1-16>/<0-1>/<mac-address>/<256-1000000>/<0-1000000>/<1-256>/<0-1>
set <sla>/ <1-16>/<0-1>/<mac-address>/<0-1>/ <0-1000000>/<1-256>/<0-7>/<2-32>
set <sla3721>/ <1-16>/<0-1>/<mac-address>/<0-1>/<0-1000000>/<0-1000000>/<1-256>/<0-1>
set <upsla>/ <1-16>/<0-1>/<mac-address>/<0-1>/<0-1000000>/<1-256>/<0-7>/<2-32>
```

Parameter

dbaparam	Set Link SLA DBA Parameter
dbaparam3721	Set Link SLA DBA Parameter
downesla	Set Downstream Egress SLA command
mcastsla	Set Multicast SLA command
mcastsla3721	Set Multicast SLA command for OLT 3721
sla	Set Link SLA command
sla3721	Set Link SLA command
upesla	Set Upstream Egress SLA command
<1-16>	SLOT number
<0-1>	0: Epon-1, 1: Epon-2
<mac-address>	link mac address
<0-1>	0: do not force report, 1: force report
<0-7>	polling level

<0-1>	0: Upstream, 1: Downstream
<1-511>	Scheduler Max-tokens (KBytes), available from 1 to 511
<1-511>	Scheduler Min-tokens (KBytes), available from 1 to 511
<0-255>	DBA Tokens (KBytes), available from 0 to 255, default 4, Note: Downstream have no Tokens and FR
<0-1>	0: do not force report, 1: force report, default 1, Note: Downstream have no Tokens and FR
<0-1>	0: Min Shaper, 1: Max Shaper
<0-1000000>	Bandwidth value, 0(not including Max Bw), 256~ 1000,000
<1-256>	Burst value
<0-7>	Scheduler Level
<2-32>	Schedule Weight
<256-1000000>	Max Bandwidth value, 256~ 1000,000
<0-1000000>	Min Bandwidth value, 0~ 1000,000
<1-256>	MaxBurst (KBytes): available from 1 to 256
<0-1>	mode: 0-Tolerant 1-Sensitive
<0-1>	0: Upstream, 1: Downstream
<0-1000000>	Max Bandwidth, 0(not including Max Bw), 1000~ 1000,000
<0-1000000>	Min Bandwidth, 0~ 1000,000

EXAMPLE

```
FK-C32(sla)# set dbaparam 7 0 00-00-00-00-00-00 0 7
Out Of Range
FK-C32(sla)#

FK-C32(sla)# set dbaparam3721 7 0 00-00-00-00-00-00 0 100 100 255 0
OLT 3723 use set dbaparam
FK-C32(sla)#

FK-C32(sla)# set downesla 7 0 00-00-00-00-00-00 0 500 100 7 30
The Mac not exist
FK-C32(sla)#
```

```
FK-C32(sla)# set mcastsla 7 0 00-00-00-00-00-00 5000 255 7 30
The Mac not exist
FK-C32(sla)#

FK-C32(sla)# set mcastsla3721 7 0 00-00-00-00-00-00 256 5000 255 0
OLT 3723 use set mcastsla
FK-C32(sla)#

FK-C32(sla)# set sla 7 0 00-00-00-00-00-00 0 5000 100 7 30
Out Of Range
FK-C32(sla)#

FK-C32(sla)# set sla3721 7 0 00-00-00-00-00-00 0 500 100 255 0
OLT 3723 use set sla
FK-C32(sla)#

FK-C32(sla)# set upesla 7 0 00-00-00-00-00-00 0 5000 255 7 30
The Mac not exist
```

show

Hint command

SYNTAX**show** < downesla> /<1-16> /<0-1> /<mac-address>**show** < mcastsla > /<1-16> /<0-1> /<mac-address>**show** < sla > /<1-16> /<0-1> /<mac-address>**show** < upesla> /<1-16> /<0-1> /<mac-address>**Parameter**

downesla	Show Downstream Egress SLA command
mcastsla	Show Multicast SLA command
sla	Show Link SLA command
upesla	Show Upstream Egress SLA command
<1-16>	SLOT number
<0-1>	0: Epon-1, 1: Epon-2
<mac-address>	link mac address

EXAMPLE

```
FK-C32(sla)# show downesla 7 0 00-00-00-00-00-00
The Mac not exist
FK-C32(sla)#

FK-C32(sla)# show mcastsla 7 0 00-00-00-00-00-00
The Mac not exist
FK-C32(sla)#

FK-C32(sla)# show sla 7 0 00-00-00-00-00-00
The Mac not exist
FK-C32(sla)#

FK-C32(sla)# show upesla 7 0 00-00-00-00-00-00
The Mac not exist
FK-C32(sla)#
```

sta

Enter into Link Statistic Information Management

SYNTAX

sta

EXAMPLE

```
FK-C32(link)# sta
FK-C32(sta)#
```

Table : LINK – STA Commands

Command	Function
clear	Clear EPON Link Statistics
show	Show Link Statistic

clear

Clear EPON Link Statistics

SYNTAX**clear** <1-16>/<mac-address>/<0-3>**Parameter**

<1-16> SLOT number

<mac-address> link mac address

<0-3> 0:Link Receive(OLT Side), 1:Link Transmit(OLT Side), 2:Link Receive(ONU Side), 3:Link Transmit(ONU Side)

EXAMPLE

```
FK-C32(sta)# clear 7 00-00-00-00-00-00 0
The Mac not exist
FK-C32(sta)#
```

show

Show Link Statistic

SYNTAX**show** <1-16>/<mac-address>/<0-3>**Parameter**

<1-16> SLOT number

<mac-address> link mac address

<0-3> 0:Link Receive(OLT Side), 1:Link Transmit(OLT Side), 2:Link Receive(ONU Side), 3:Link Transmit(ONU Side)

EXAMPLE

```
FK-C32(sta)# show 7 00-00-00-00-00-00 0
The Mac not exist
FK-C32(sta)#
```

4.16 Login-protect

Table :Login-protect Commands

Command	Function
block-time	Set block time interval
resume	resume login-failed IP Address
show	Show Login Protect information

block-time

Set block time interval

SYNTAX

block-time <0-60>

Parameter

<0-60> Available from 0 to 60 (minutes), set 0 as disabled

EXAMPLE

```
FK-C32(login-protect)# block-time 10
FK-C32(login-protect)#
```

resume

resume login-failed IP Address

SYNTAX

resume <ip-hostname>

Parameter

<ip-hostname> IP Address

EXAMPLE

```
FK-C32(login-protect)# show login-failed
No. IP          Login-Failed Counter
---
1  10.150.3.84   3
FK-C32(login-protect)# resume 10.150.3.84
FK-C32(login-protect)# show login-failed
No. IP          Login-Failed Counter
---
There is no entry for Login-failed List
```

show

Show Login Protect information

SYNTAX

show <config>or<login-failed>

Parameter

config	Show Login Protect configuration
login-failed	Show login-failed list

EXAMPLE

```
FK-C32(login-protect)# show config
Lock-Minutes : 10 minutes
FK-C32(login-protect)#
```

4.17 OLT Commands of CLI

Table :OLT Commands

Command	Function
bc	Enter into Advanced Bridging Config Management
clear	Clear OLT Provision command
dba	Enter into DBA Information
flow-control	set Port Flow Control
green	Enter into OLT Green Pon
igmp	Enter into OLT IGMP Proxy Config
mdio	send Olt Mdio Command. Warning: for debug
network	Enter into Network Parameters Management
olt-disable	Disable EPON OLT
olt-enable	Enable EPON OLT
olt-reset	Reset EPON OLT
olt-restore	Restore EPON OLT
optcalctrl	set Optical Control
optcalmon	set Optical Power Monitor Config
port-control	Set Port disable then enable. Warning: for debug
redundant	Enter into OLT Redundant
rstp	Enter into OLT RSTP
show	Show OLT command
speed	set Port Speed Duplex
sta	Enter into Statistic Information Management
state	set Port State
switch-onu	Switch ONU to other EPON port
tm	Enter into TM Informationdelete Delete commands

clear

Clear OLT Provision command

SYNTAX

clear <provinhost>or<provinolt> <1-16> <0-1> <1-500>

Parameter

provinhost Clear OLT Provision in Host
provinolt Clear OLT Provision in OLT
<1-16> SLOT number
<0-1> 0: epon-1, 1: epon-2
<1-500> index of All Known Links Provsion in Host

EXAMPLE

```
FK-C32 (olt) # clear provinhost 2 0 20
FK-C32 (olt) #
```

flow-control

set Port Flow Control

SYNTAX

flow-control <1-16>/<2-3>/<0-1>

Parameter

<1-16>	SLOT number
<2-3>	2:nni-1,3:nni-2
<0-1>	Flow Control. 1:Enable, 0:Disable

EXAMPLE

```
FK-C32 (olt) # flow-control 7 2 0
FK-C32 (olt) #
```

mdio

send Olt Mdio Command. Warning: for debug

SYNTAX

Mdio <1-16>/<WORD>/<2-3>

Mdio <1-16>/<WORD>/<2-3>/<WORD>

Parameter

<1-16>	SLOT number
<WORD>	register, hex
<2-3>	port
<WORD>	value

EXAMPLE

```
FK-C32 (olt) # mdio 7 500 2 100
FK-C32 (olt) #
```

olt-disable

Disable EPON OLT

SYNTAX**olt-disable** <1-16>**Parameter**

<1-16> SLOT number

EXAMPLE

```
FK-C32 (olt) # olt-disable 7
FK-C32 (olt) #
```

olt-enable

Enable EPON OLT

SYNTAX**olt-enable** <1-16>**Parameter**

<1-16> SLOT number

EXAMPLE

```
FK-C32 (olt) # olt-enable 7
FK-C32 (olt) #
```

olt-reset

Reset EPON OLT

SYNTAX**olt-reset** <1-16>**Parameter**

<1-16> SLOT number

EXAMPLE

```
FK-C32 (olt) # olt-reset 7
FK-C32 (olt) #
```

olt-restore

Restore EPON OLT

SYNTAX

olt-restore <1-16>

Parameter

<1-16> SLOT number

EXAMPLE

```
FK-C32 (olt) # olt-restore 7
FK-C32 (olt) #
```

optcalctrl

set Optical Control

SYNTAX

optcalctrl <1-16>/<0-1>/<0-4>/<mac-address>/<0-624>/<0-625>

Parameter

<1-16> SLOT number

<0-1> 0: epon-1, 1: epon-2

<0-4> New Run Mode, 0: Off, 1: On(All Links), 2: No Idle, 3: Idle Only, 4: Single Link

<mac-address> Link Mac Address, If New Run Mode is 4, you must set Link Mac Address. If others, Set Link Mac Address 00-00-00-00-00-00.

<0-624> Start Strobe

<0-625> End Strobe

EXAMPLE

```
FK-C32 (olt) # optcalctrl 7 0 0 00-00-00-00-00-00 200 255
FK-C32 (olt) #
```

optcalmon

set Optical Power Monitor Config

SYNTAX**optcalmon**<1-16>/<0-1>/<0-1>**Parameter**

<1-16>	SLOT number
<0-1>	0: epon-1, 1: epon-2
<0-1>	Hardware Type, 0:Not Supported, 1:SFF-8472 Compliant

EXAMPLE

```
FK-C32(olt)# optcalmon 7 0 0
FK-C32(olt)#
```

port-control

set Optical Control

SYNTAX**port-control**<1-16>/<0-2>**port-control**<1-16>/<0-2>/<0-5000>**Parameter**

<1-16>	port 1~16
<0-2>	0:disable/enable, 1:disable, 2:enable
<0-5000>	delay (ms)

EXAMPLE

```
FK-C32(olt)# port-control 7 0 1000
port disable: line 2567: port=6, 1293842863 . 620000
port enable: line 2571: port=6, 1293842864 . 620000
FK-C32(olt)#
```

show

Show OLT command

SYNTAX

show< gpio>/<1-16>/<0-255>/<0-3>

show< oltInfo / optcalmon / provinhost >/<1-16>

show< optcalctrl / optcalmon / provinhost /sfp>/<1-16>/<0-1>

Parameter

gpio	Show OLT GPIO value
oltInfo	Show General Information Of An OLT
optcalctrl	Show OLT Optical Power Control
optcalmon	Show OLT Optical Power Monitor Config
port-config	Show OLT Port Information
provinhost	Show OLT Provision in Host
provinolt	Show OLT Provision in OLT
sfp	Show sfp information
<1-16>	SLOT number
<0-255>	GPIO pin
<0-3>	port number
<0-1>	0: epon-1, 1: epon-2
<1-16>	SLOT number
<0-1>	SFP Port number

EXAMPLE

```
FK-C32 (olt) # show oltInfo 7

Attribute
=====

Model Name          FK-OLT-20
Serial Number       12LT21000001
Mac Address         b8-26-d4-00-00-01
Firmware Version    0x242
Chip ID             0x3723
Chip Version        0xa0071101
Boot Code Version   0x240
Personality Version f12
App0 Version        0x242
App1 Version        0x242

FK-C32 (olt) #
```

speed

set Port Speed Duplex

SYNTAX

speed<1-16>/<2-3>/<WORD>

Parameter

<1-16>	SLOT number
<2-3>	2:nni-1,3:nni-2
<WORD>	1:Auto Nego. Enable, 10:Force 10M half duplex, 11:Force 10M full duplex, 100:Force 100M half duplex, 101:Force 100M full duplex, 1001:Force 1G full duplex

EXAMPLE

```
FK-C32 (olt) # speed 7 2 1

FK-C32 (olt) #
```

state

set Port State

SYNTAX**state**<1-16>/<0-3>/<0-1>**Parameter**

<1-16>	SLOT number
<0-3>	0: epon-1 port, 1: epon-2 port 2: nni-1, 3: nni-2
<0-1>	0: Disable, 1:Enable

EXAMPLE

```
FK-C32(olt)# state 7 0 0
FK-C32(olt)#
```

switch-onu

Switch ONU to other EPON port

SYNTAX**switch-onu**<1-16>/<0-1>/<0-1>**Parameter**

<1-16>	SLOT number
<0-1>	switch to 0:epon-1, 1:epon-2
<0-1>	switch to 0:nni-1, 1:nni-2

EXAMPLE

```
FK-C32(olt)# switch-onu 7 0 1
FK-C32(olt)#
```

bc

Enter into Advanced Bridging Config Management

SYNTAX**bc**

EXAMPLE

```
FK-C32 (olt) # bc
FK-C32 (bc) #
```

Table :OLT-BC Commands

Command	Function
advbrdgcfg	Set advanced bridge config for OLT 3721
brdgcfg	Set OLT bridge config
pricopycfg	Set priority copy config for an OLT for OLT 3721
pricopytable	Set priority copy table for an OLT for OLT 3721
show	Show OLT Bridging Config command

advbrdgcfg

Set advanced bridge config for OLT 3721

SYNTAX

advbrdgcfg <1-16>/<0-32768>/<0-1>/<0-1>/<0-1>/<0-1>

Parameter

<1-16>	SLOT number
<0-32768>	age limit
<0-1>	downstream frames reset age, 0-disable 1-enable, default 0
<0-1>	mac learning overwrite, 0-disable 1-enable
<0-1>	discard unknown mac, 0-disable 1-enable
<0-1>	allow vlan tags on simple bridge, 0-disable 1-enable

EXAMPLE

```
FK-C32 (bc) # advbrdgcfg 7 1000 0 0 0 0
OLT 3723 use brdgcfg
FK-C32 (bc) #
```


brdgcfg

Set OLT bridge config

SYNTAX

brdgcfg <1-16>/<0-2000000000>/<0-1>

Parameter

<1-16>	SLOT number
<0-2000000000>	age limit
<0-1>	Allow Vlan Tag on Simple Bridge

EXAMPLE

```
FK-C32(bc)# brdgcfg 7 1000000 0
FK-C32(bc)#
```

pricopycfg

Set priority copy config for an OLT for OLT 3721

SYNTAX

pricopycfg <1-16>/<0-3>/<0-7>

Parameter

<1-16>	SLOT number
<0-3>	A/B Precedence: 0 = Mode A only, 1 = Mode B only, 2 = Mode A over B, 3 = Mode B over A, (Mode A is IP-TOS, Mode B is COS)
<0-7>	Default output COS value when there is no priority. Note: This command only set A/B precedence and default output COS value. If you want to change priority copy table, you must use set pricopytable.

EXAMPLE

```
FK-C32(bc)# pricopycfg 7 0 7
OLT 3723 priority table is in link brdgmode
FK-C32(bc)#
```

pricopytable

Set priority copy table for an OLT for OLT 3721

SYNTAX

pricopytable <1-16>/<0-1>/<WORD>

Parameter

<1-16> SLOT number

0-1> priority table: 0 -> priority mode A table ,

1 -> priority mode B table,

(Mode A is IP-TOS, Mode B is COS)

<WORD> output cos mapping 0..N-1: Output COS value, when input priority value is 0..N-1,comma separate Example: set pricopytable 10 a 8 0,1,2,3,4,5,6,7

EXAMPLE

```
FK-C32(bc)# pricopytable 7 0 6
OLT 3723 priority table is in link brdgmde
FK-C32(bc)#
```

show

Show OLT Bridging Config command

SYNTAX

Show <advbrdgcfg / brdgcfg / pricopycfg>/<1-16>

Parameter

<1-16> SLOT number

advbrdgcfg Show advanced bridge config for OLT 3721

brdgcfg Show OLT bridge config

pricopycfg Show priority copy config of an OLT for OLT 3721

EXAMPLE

```
FK-C32(bc)# show brdgcfg 7
Learned entry age limit(unit=9.375ms)      : 16960
Allow Vlan Tag on Simple Bridge             : Disable

The actual time is  $(2^n) \times 9.375$  ms,  $n = 1, 2, 3 \dots$ ,
for example:  $n=11$ ,  $2^{11} \times 9.375 = 2048 \times 9.375 = 19200$  ms
 $n=10$ ,  $2^{10} \times 9.375 = 1024 \times 9.375 = 9600$  ms.
If Age Limit is 9601~19200, actual time is 19200 ms.
 $n=9$ ,  $2^9 \times 9.375 = 512 \times 9.375 = 4800$  ms.
If Age Limit is 4801~9600, actual time is 9600 ms.

FK-C32(bc) #
```

dba

Enter into DBA Information

SYNTAX

dba

EXAMPLE

```
FK-C32(olt) # dba
FK-C32(dba) #
```

Table :OLT-DBA Commands

Command	Function
broadcast-3721	Set Broadcast SLA command for OLT 3721
broadcast-sla	Set Broadcast SLA command
egress-ddw	set Egress DBA Drop-Down Weight
egress-shaper	set Aggregate Shaper Egress
ingress-dba	set Aggregate Shaper Ingress/DBA
ingress-ddw	set Ingress/DBA Drop-Down Weight
polling-rate	Set Polling Rate
priority-range	Set Priority Range
show	Show Aggregate Shaper Information command

broadcast-3721

Set Broadcast SLA command for OLT 3721

SYNTAX

broadcast-3721 <1-16>/<1000-1000000>/<0-1000000>/<1-256>/<0-1>

Parameter

<1-16>	SLOT number
<1000-1000000>	Max Bandwidth value, 1000~ 1000,000 Kbps
<0-1000000>	Min Bandwidth value, 0~ 1000,000 Kbps
<1-256>	Max Burst value, 0 ~ 256 KBytes
<0-1>	Mode,0: Tolerant, 1: Sensitive

EXAMPLE

```
FK-C32 (dba) # broadcast-3721 7 1000000 1000000 255 0
FK-C32 (dba) #
```

broadcast-sla

Set Broadcast SLA command

SYNTAX

broadcast-sla <1-16>/<0-3> /<0-1>/<0-1000000>/<1-256>/<0-7>/<2-32>

Parameter

<1-16>	SLOT number
<0-3>	0: epon-1 <-> nni-1, 1: epon-2 <-> nni-1, 2: epon-1 <-> nni-2, 3: epon-2 <-> nni-2
<0-1>	0: Min Shaper, 1: Max Shaper
<0-1000000>	Bandwidth value, 0(not including Max Bw), 256~ 1000,000
<1-256>	Burst value
<0-7>	Scheduler Level
<2-32>	Schedule Weight

EXAMPLE

```
FK-C32 (dba) # broadcast-sla 7 0 0 50000 20 0 30
FK-C32 (dba) #
```

egress-ddw

set Egress DBA Drop-Down Weight

SYNTAX**egress-ddw** <1-16>/<0-3> /<1-7>/<0-256>**Parameter**

<1-16>	SLOT number
<0-3>	0: epon-1, 1: epon-2, 2: nni-1, 3: nni-2
<1-7>	level 1~7
<0-256>	level 1~7 value

EXAMPLE

```
FK-C32 (dba) # egress-ddw 7 0 7 255
FK-C32 (dba) #
```

egress-shaper

set Egress DBA Drop-Down Weight

SYNTAX**egress-shaper** <1-16>/<0-3> /<0-1000000>/<0-256>**Parameter**

<1-16>	SLOT number
<0-3>	0: epon-1, 1: epon-2, 2: nni-1, 3: nni-2
<0-1000000>	MaxBw: available from 256 to 1000000, (0 : disable aggregate bandwidth).OLT 3721 MaxBw: available from 100 to 1000000
<0-256>	MaxBurst: available from 0 to 256, 0 : disable aggregate bandwidth.

EXAMPLE

```
FK-C32 (dba) # egress-shaper 7 0 5000 255
FK-C32 (dba) #
```

ingress-dba

set Aggregate Shaper Ingress/DBA

SYNTAX**ingress-dba** <1-16>/<0-1> /<0-1000000>/<0-256>

Parameter

<1-16>	SLOT number
<0-1>	direction: 0: epon-1, 1: epon-2.
<0-1000000>	MaxBw: available from 256 to 1000000, (0 : disable aggregate bandwidth).OLT 3721 MaxBw: available from 100 to 1000000
<0-256>	MaxBurst: available from 0 to 256, 0 : disable aggregate bandwidth.

EXAMPLE

```
FK-C32 (dba) # ingress-dba 7 0 5000 255
FK-C32 (dba) #
```

ingress-ddw

set Ingress/DBA Drop-Down Weight

SYNTAX

ingress-ddw <1-16>/<0-1>/<1-7>/<0-256>

Parameter

<1-16>	SLOT number
<0-1>	Port: 0: epon-1, 1: epon-2
<1-7>	level 1~7, OLT 3721: 1:level 0, 2:level 1
<0-256>	level 1~7 value.

EXAMPLE

```
FK-C32 (dba) # ingress-ddw 7 0 7 255
FK-C32 (dba) #
```

polling-rate

Set Polling Rate

SYNTAX

polling-rate<1-16>/<0-1>/<0-7>/<0-256>

Parameter

<1-16>	SLOT number
<0-1>	Port: 0: epon-1, 1: epon-2
<0-7>	level 0~7 (Unit: 65.5 us).
<0-256>	level rate (Unit: 65.5 us).

EXAMPLE

```
FK-C32 (dba) # polling-rate 7 0 7 255
FK-C32 (dba) #
```

priority-range

Set Priority Range

SYNTAX

priority-range<1-16>/<0-2>/<0-244>

Parameter

<1-16>	SLOT number
<0-2>	level 0~2
<0-224>	level 0~2 value

EXAMPLE

```
FK-C32 (dba) # priority-range 7 0 200
OLT 3723 doesn't support priority range
FK-C32 (dba) #
```

show

Show Aggregate Shaper Information command

SYNTAX

Show <broadcast-sla >/<1-16>/<0-3>

Show <egress-ddw/ egress-shaper/ingress-dba/ingress-ddw/polling-rate/ priority-range>/<1-16>

Parameter

<1-16>	SLOT number
broadcast-sla	Show Broadcast SLA
egress-ddw	Show DBA Drop-Down Weight Egress
egress-shaper	Show Aggregate Shaper Egress, OLT 3721 down aggr shaper
ingress-dba	Show Aggregate Shaper Ingress/DBA,OLT 3721 up aggr shaper
ingress-ddw	Show DBA Drop-Down Weight Ingress/DBA,OLT 3721 dba ddw
polling-rate	Show Polling Rate
priority-range	Show SLA Priority Range
<0-3>	0: epon-1 <-> nni-1, 1: epon-2 <-> nni-1, 2: epon-1 <-> nni-2, 3: epon-2
<-> nni-2	

EXAMPLE

```
FK-C32(dba)# show broadcast-sla 7 0
```

```
Epon-1 <-> NNI-1 Broadcast SLA
```

```
Min Shaper      : Disable
```

```
Min Bw(kbps)    : 0
```

```
Min Burst(kbps) : 0
```

```
Scheduler Lvl   : 0
```

```
Schedule Weight : 0
```

```
Max Shaper      : Enable
```

```
Max Bw(kbps)    : 100000
```

```
Max Burst(kbps) : 100
```

```
Scheduler Lvl   : 2
```

```
Schedule Weight : 2
```

```
FK-C32(dba)#
```

```
FK-C32(dba)# show egress-shaper 7
```

```
Epon-1 Egress
```

```
Epon-1 Aggregate Shaper Egress : Enable
```

```
=====
```

```
Max Bw      : 5000      Kbps
```

```
Max Burst   : 255       KBytes
```

```
Epon-2 Egress
```

```
Epon-2 Aggregate Shaper Egress : Disable
```

```
NNI-1 Egress
```

```
NNI-1 Aggregate Shaper Egress : Disable
```

```
NNI-2 Egress
```

```
NNI-2 Aggregate Shaper Egress : Disable
```

```
FK-C32(dba)#
```


green

Enter into OLT Green Pon

SYNTAX

green

EXAMPLE

```
FK-C32 (olt) # gree
FK-C32 (green) #
```

Table :OLT-GREEN Commands

Command	Function
disonugn	Del many ONUs green pon for an OLT
enblonugn	Set many ONUs green pon for an OLT
green	Set green pon for an OLT
greenparam	Set green pon parameters for an OLT
show	Show OLT Green Pon command

disonugn

Del many ONUs green pon for an OLT

SYNTAX

disonugn <1-16>/<0-1>

Parameter

<1-16>	SLOT number
<0-1>	0: epon-1, 1: epon-2

EXAMPLE

```
FK-C32 (green) # disonugn 7 0
FK-C32 (green) #
```

enblonugn

Set many ONUs green pon for an OLT

SYNTAX

enblonugn <1-16>/<0-1>

Parameter

<1-16>	SLOT number
<0-1>	0: epon-1, 1: epon-2

EXAMPLE

```
FK-C32 (green) # enblonugn 7 0
FK-C32 (green) #
```

green

Set green pon for an OLT

SYNTAX

green <1-16>/<0-1><0-1>

Parameter

<1-16>	SLOT number
<0-1>	0: epon-1, 1: epon-2
<0-1>	0: disable, 1: enable, other value is not changed.

EXAMPLE

```
FK-C32 (green) # green 7 0 0
FK-C32 (green) #
```

greenparam

Set green pon parameters for an OLT

SYNTAX

greenparam <1-16>/<0-1>/<0-999>/<0-999>/<0-999>/<0-999>/<0-999>/<0-999>/<0-999>

Parameter

<1-16>	SLOT number
<0-1>	0: epon-1, 1: epon-2
<0-999>	Sleep After No Traffic
<0-999>	Off Time
<0-999>	Min On Time
<0-999>	Min ONU Off Time
<0-999>	Sleep Check Timer
<0-999>	Time For ONU to Begin to Sleep
<0-999>	Grace Time After Wakeup for ONU to Return

EXAMPLE

```
FK-C32 (green) # greenparam 7 0 999 999 50 50 100 100 500
FK-C32 (green) #
```

show

Show OLT Green Pon command

SYNTAX

show < green >/<1-16>/<0-1>

show <onupwsvrep >/<1-16>/<0-1>

Parameter

<1-16>	SLOT number
<0-1>	0: epon-1, 1: epon-2
green	Show OLT Green Pon
onupwsvrep	Show ONU Power Save Report
<0-1>	0: not clear statistics, 1: clear statistics

EXAMPLE

```
FK-C32(green)# show green 7 0
OLT Green Pon - Epon-1
-----
Green Pon                : disable
Sleep After No Traffic(ms) : 999
Off Time(ms)              : 999
Minimum On Time(ms)       : 50
Minimum ONU Off Time(ms)  : 50
Sleep Check Time          : 100
Time For ONU To Begin To Sleep(ms) : 100
Grace Time After Wakeup(ms) : 500

*Sleep After No Traffic : Instructs the OLT to tell the ONU to sleep if the
ONU's statistic has not incremented in the specified number of ms.
*Off Time : The length of the sleep cycle (off time) for the ONUs.
*Min On Time : Indicates to the OLT the minimum length of time that an ONU
must be kept awake.
*Min ONU Off Time : Indicates to the OLT the minimum length of time that must
remain in the current sleep cycle to instruct an ONU to sleep.
*Sleep Check Timer : Indicates how often the OLT runs the sleep state machine
to check for sleep eligible ONUs.
*Time For ONU to Begin to Sleep : Indicates to the OLT the length of time to
allow the ONU to stop reporting after the ONU has been told to sleep.
*Grace Time After Wakeup for ONU to Return : Indicates to the OLT the length
of time to wait for the ONU to begin reporting after a sleep, before the ONU
is deregistered.
FK-C32(green)#
```

igmp

Enter into OLT IGMP Proxy Config

SYNTAX

igmp

EXAMPLE

```
FK-C32 (olt) # igmp
FK-C32 (igmp) #
```

Table :OLT-IGMP Commands

Command	Function
add	Add OLT IGMP Parameters
del	Del OLT IGMP Parameters
igmpsla	Set OLT IGMP SLA for OLT 3721
proxy	Set OLT IGMP Proxy Config for OLT 3723
proxydefault	Set OLT IGMP Default Proxy Parameter
proxyl	set Last Member Query Param.
proxyp3721	Set OLT IGMP Proxy Parameter for OLT 3721
proxyparam	Set OLT IGMP Proxy Parameter
proxypq	set Query Parameters(include start param.)
show	Show OLT IGMP Proxy Command

add

Add OLT IGMP Parameters

SYNTAX

add <1-16>/< vlan >/<0-7>/<0-4094>/<0-7>/<0-4094>/<0-1000000>/<0-1000000>/<0-1000000>

Parameter

<1-16>	SLOT number
vlan	Del OLT IGMP VLAN
<0-7>	NCoS: Network CoS, available from 0 to 7.
<0-4094>	NVID: Network VID, available from 0 to 4094.
<0-7>	ECoS: Epon CoS, available from 0 to 7.
<0-4094>	EVID: Epon VID, available from 0 to 4094.
<0-1000000>	MinBw: Minimum Guaranteed Bandwidth, available from 0 to 1000000.
<0-1000000>	MaxBw: Maximum Allowed Bandwidth, available from 0 to 1000000.
<0-1000000>	DBw: Default Per-Channel Bandwidth, available from 0 to 1000000.

EXAMPLE

```
FK-C32(igmp)# add vlan 7 0 1000 5 1000 5000 5000 5000
FK-C32(igmp)#
```

del

Delete OLT IGMP Parameters

SYNTAX

Del <1-16>/< vlan >/<1-8>

Parameter

<1-16>	SLOT number
vlan	Del OLT IGMP VLAN
<1-8>	num: vlan group number, available from 1 to 8.

EXAMPLE

```
FK-C32(igmp)# del vlan 7 1
FK-C32(igmp)#
```

igmpsla

Set OLT IGMP SLA for OLT 3721

SYNTAX

igmpsla <1-16>/<256-1000000>/<0-1000000>/<1-256>/<0-1>

Parameter

<1-16>	SLOT number
<256-1000000>	Maximum Bandwidth
<0-1000000>	Minimum Bandwidth
<1-256>	MaxBurst: Max Burst Size, 1~256
<0-1>	Mode: Priority Level. 0-Tolerant 1-Sensitive

EXAMPLE

```
FK-C32(igmp)# igmpsla 7 1000 500 255 0
FK-C32(igmp)#
```

proxy

Set OLT IGMP Proxy Config for OLT 3723

SYNTAX

proxy <1-16>/<0-3072>/<0-2000000> /<0-1>/<0-1>/<0-1>

Parameter

<1-16>	SLOT number
<0-3072>	Maximum IP Multicast Group
<0-2000000>	Global Bandwidth Poll Size
<0-1>	Capture All Mode
<0-1>	DA Fprwarding
<0-1>	SA Forwarding

EXAMPLE

```
FK-C32(igmp)# proxy 7 3000 10000 0 0 0
FK-C32(igmp)#
```

proxydefault

Set OLT IGMP Default Proxy Parameter

SYNTAX

proxydefault <1-16>

Parameter

<1-16>	SLOT number
--------	-------------

EXAMPLE

```
FK-C32(igmp)# proxydefault 7
FK-C32(igmp)#
```

proxyl

set Last Member Query Param.

SYNTAX

proxyl <1-16>/<0-16>/<1-2600>/<1-255>/<0-2000000>

proxyl <1-16>/<0-16>/<1-2600>/<1-255>/<0-2000000>/<0-2000000>/<0-1000000>

Parameter

<1-16>	SLOT number
<0-16>	Last Member Query Count
<1-2600>	Last Member Query Interval (Unit:10ms)
<1-255>	Last Member Query Message Max. Resp. Time (Unit:100ms)
<0-2000000>	Min Guaranteed Bandwidth(Kbps)
<0-2000000>	Max Bandwidth(Kbps)
<0-1000000>	Default Per-Channel Bandwidth(Kbps)

EXAMPLE

```
FK-C32(igmp)# proxy1 7 2 100 200 10000 1000000 1000000
FK-C32(igmp)#
```

proxyp3721

set Last Member Query Param.

SYNTAX

proxyp3721 <1-16>/<0-3>/<1-2500>/<0-4094>/<1-10>/<ip-address>/ <0-1>/<0-1>

Parameter

<1-16>	SLOT number
<0-3>	Retransmit Count
<1-2500>	Retransmit Interval (Unit:10ms)
<0-4094>	VLAN ID, available from 0 to 4094
<1-10>	Num. Multicast Queues, available from 1 to 10
<ip-address>	SA-IP: IPv4 SA.
<0-1>	IGMP Frame checksum validation, 0-disable 1-enable
<0-1>	IGMP IP Header checksum validation, 0-disable 1-enable

EXAMPLE

```
FK-C32(igmp)# proxyp3721 7 0 1000 1200 10 192.168.1.1 0 0
FK-C32(igmp)#
```


proxyparam

Set OLT IGMP Proxy Parameter

SYNTAX**proxyparam** <1-16>/<0-3>/<1-2500>/<ip-address>/<ipv6-address>/ <0-1>/<0-1>**Parameter**

<1-16>	SLOT number
<0-3>	Retransmit Count
<1-2500>	Retransmit Interval (Unit:10ms)
<ip-address>	SA-IP: IPv4 SA.
<ipv6-address>	IPv6 SA
<0-1>	IGMP Frame checksum validation, 0-disable 1-enable
<0-1>	IGMP IP Header checksum validation, 0-disable 1-enable

EXAMPLE

```
FK-C32 (igmp) # proxyparam 7 0 1000 192.168.1.1 ::192.168.1.1 0 0
FK-C32 (igmp) #
```

proxyq

set Query Parameters(include start param.)

SYNTAX**proxyq** <1-16>/<0-3072>/<1-16> /<0-16> /<1-65535>/ <1-65535>/<11-65534><1-255>**Parameter**

<1-16>	SLOT number
<0-3072>	Maximum IP Multicast Group,0: disable IGMP
<1-16>	Robustness Count
<0-16>	Start Query Count
<1-65535>	Start Query Interval(Unit:10ms)
<1-65535>	Query Interval(Unit:10ms)
<11-65534>	Query Response Timeout(Unit:10ms):1~2600(OLT 3723),11~65534(OLT 3721)
<1-255>	Query Maximum Response Timeout(Unit:100ms)

EXAMPLE

```
FK-C32(igmp)# proxyq 7 1000 10 12 10000 12000 15000 100
FK-C32(igmp)#
```

show

set Query Parameters(include start param.)

SYNTAX

show < group/ param/proxy/sla/vlan >/<1-16>

show < group ><1-16><0-4095>

Parameter

<1-16>	SLOT number
group	Show OLT IGMP Proxy Group
param	Show OLT IGMP Proxy Parameter
proxy	Show OLT IGMP Proxy
sla	Show OLT IGMP SLA for OLT 3721
vlan	Show OLT IGMP Vlan for OLT 3721
<0-4095>	vid: group vid , available from 0 to 4094.4095:will show all groups

EXAMPLE

```
FK-C32(igmp)# show group 7 1000
IGMP Proxy Group
No      Group ID                               Join
=====
FK-C32(igmp)#

FK-C32(igmp)# show proxy 7
Proxy Configuration
=====
Maximum IP Multicast Groups           : 3000
Global Bandwidth Pool Size            : 10000
Capture All Mode                      : No
DA Forwarding                        : Forward by L2 DA
SA Forwarding                        : Off
FK-C32(igmp)#
```

network

Enter into Network Parameters Management

SYNTAX

network

EXAMPLE

```
FK-C32 (olt) # network
FK-C32 (network) #
```

Table :OLT-NETWORK Commands

Command	Function
loop_timing	Set EPON OLT Loop Timing
mpcp_param	Set EPON OLT MPCP Parameters
oam_param	Set EPON OLT OAM Parameters
show	Show OLT EPON Network Parameters
vlan_param	Set EPON OLT VLAN Parameters

loop_timing

Set EPON OLT Loop Timing

SYNTAX

loop_timing <maxpgdelay / minpgdelay >/<1-16>/<0-1>/<0-19920>

loop_timing <onudelay >/<1-16>/<0-1>/<3125-30000>

loop_timing <upndelayoff>/<1-16>/<0-1>/<-32768-32767>

Parameter

<1-16>	SLOT number
maxpgdelay	Set EPON OLT Max Propagation Delay
minpgdelay	Set EPON OLT Min Propagation Delay
onudelay	Set EPON ONU Delay
upndelayoff	Set EPON OLT Up/Down Delay Offset
<0-1>	Set EPON OLT Max Propagation Delay, 0:EPON Port-1, 1:EPON Port-2
<0-19920>	Default:0, Range:0~19920
<3125-30000>	Default:3125, Range:3125~30000
<-32768-32767>	Default:0, Range:-32768~32767

EXAMPLE

```
FK-C32(network)# loop_timing maxpgdelay 7 0 10000
FK-C32(network)#
```

mpcp_param

Set EPON OLT MPCP Parameters

SYNTAX

mpcp_param < period ><0-1>/<10-65530>

mpcp_param < window >/<1-16>/<0-1>/<84-131070>

Parameter

<1-16>	SLOT number
period	Set EPON OLT MPCP Discovery Period
window	Set EPON OLT MPCP Discovery Window
<0-1>	Set EPON OLT MPCP Discovery Period, 0:EPON Port-1, 1:EPON Port-2,OLT 3721 only has EPON Port-1
<10-65530>	Default:100, Range:1~6553(10ms)
<0-1>	Set EPON OLT MPCP Discovery Window, 0:EPON Port-1, 1:EPON Port-2
<84-131070>	Default:16319, Range:84~131070(Bytes)

EXAMPLE

```
FK-C32(network)# mpcp_param period 7 0 100
FK-C32(network)#
```

oam_param

Set EPON OLT OAM Parameters

SYNTAX

oam_param < loopBack ><1-16>/<10-65535>

oam_param < max_rate >/<1-16>/<0-255>

oam_param < min_rate >/<1-16>/<0-4>

Parameter

<1-16>	SLOT number
loopBack	Set EPON OLT LoopBack Timeout
max_rate	Set EPON OLT Max OAM Rate
min_rate	Set EPON OLT Min OAM Rate
<10-65535>	Default:600, Range:10~65535(100ms)
<0-255>	Default:30, Range:0~255(PDUs/sec)
<0-4>	Default:1, Range:0~4(sec/PDU)

EXAMPLE

```
FK-C32(network)# oam_param loopBack 7 10000
FK-C32(network)#
```

show

Show OLT EPON Network Parameters

SYNTAX

show <loop_timing/mpcp_param / oam_param/ vlan_param>/<1-16>

Parameter

<1-16>	SLOT number
loop_timing	Show EPON Loop Timing
mpcp_param	Show EPON MPCP Parameters
oam_param	Show EPON OAM Parameters
vlan_param	Show EPON VLAN Parameters

EXAMPLE

```
FK-C32(network)# show loop_timing 7
OLT Loop Timing :

EPON Port-1 :
Minimum Propagation Delay      : 0
Maximum Propagation Delay      : 6250
Onu Delay                      : 3125
Onu Up/Down Offset             : 0

EPON Port-2 :
Minimum Propagation Delay      : 0
Maximum Propagation Delay      : 6250
Onu Delay                      : 3125
Onu Up/Down Offset             : 0
FK-C32(network) #
```

vlan_param

Set EPON OLT VLAN Parameters

SYNTAX

vlan_param < ether_type > / <1-16> / <WORD>

vlan_param < tag_down / tag_up > / <1-16> / < disable / enable >

Parameter

<1-16>	SLOT number
ether_type	Set EPON OLT Vlan Ether Type
tag_down	Set EPON OLT VLAN Tag Up Mode
tag_up	Set EPON OLT VLAN Tag Up Mode
<WORD>	Default:8100
disable	Disable EPON OLT VLAN Tag Down
enable	Enable EPON OLT VLAN Tag Down

EXAMPLE

```
FK-C32(network)# vlan_param ether_type 7 8100
FK-C32(network) #
```

redundant

Enter into OLT Redundant

SYNTAX

redundant

EXAMPLE

```
FK-C32 (olt) # redundant
FK-C32 (redundant) #
```

Table :OLT-REDUNDANT Commands

Command	Function
disredund	Disable OLT Redundant
disslotredund	Disable OLT Slot Redundant
enbloredund	Enable OLT Redundant
enbloslotredund	Enable OLT Slot Redundant
show	Show OLT Redundant command

disredund

Disable OLT Redundant

SYNTAX

disredund <1-16>

Parameter

<1-16> SLOT number

EXAMPLE

```
FK-C32 (redundant) # disredund 7
FK-C32 (redundant) #
```

disslotredund

Disable OLT Slot Redundant

SYNTAX

disredund <1-8>

Parameter

<1-8> group number

EXAMPLE

```
FK-C32 (redundant) # disslotredund 2
FK-C32 (redundant) #
```

enbiredund

Enable OLT Redundant

SYNTAX**enbiredund** <1-16>/<0-1>/<0-1>**Parameter**

- | | |
|---------------------|---|
| <1-16> | SLOT number |
| <0-1> | Master Port(0: epon-1, 1: epon-2). It must be different from Slave. |
| <0-1> | Slave Port(0: epon-1, 1: epon-2). It must be different from Master. |

EXAMPLE

```
FK-C32 (redundant) # enbiredund 7 0 1
FK-C32 (redundant) #
```

enbislotredund

Enable OLT Slot Redundant

SYNTAX**enbislotredund** <1-8> <0-1>/<0-1>**Parameter**

- | | |
|---------------------|--|
| <1-8> | group number |
| <1-16> | Master Slot(represent working slot). It must be different from Slave. |
| <1-16> | Slave Slot. It must be different from Master. |
| <1-15> | Monitor port. Bit0:Epon-1, Bit1:Epon-2,
Bit2:NNI-1, Bit3:NNI-2.
1: EPON-1, 2: EPON-2
3: EPON-1 & EPON-2, 4: NNI-1
5: EPON-1 & NNI-1, 6: EPON-2 & NNI-1
7: EPON-1 & EPON-2 & NNI-1, 8: NNI-2
9: EPON-1 & NNI-2, 10: EPON-2 & NNI-2
11: EPON-1 & EPON-2 & NNI-2, 12: NNI-1 & NNI-2
13: EPON-1 & NNI-1 & NNI-2, 14: EPON-2 & NNI-1 & NNI-2
15: EPON-1 & EPON-2 & NNI-1 & NNI-2 |

EXAMPLE

```
FK-C32 (redundant) # enblslotredund 2 3 4 5
FK-C32 (redundant) #
```

show

Show OLT Redundant command

SYNTAX

show <1-16>/< redundant >

Parameter

<1-16>	SLOT number
redundant	Show OLT Redundant

EXAMPLE

```
FK-C32 (redundant) # show redundant 7
OLT Green Pon - Epon- Slot 7
-----
Enable                               : disable
Master                               : EPON-1
Slave                                : EPON-1
EPON-1 Status                        : On
EPON-2 Status                        : On

*OLT Redundant Enable means that EPON-1 and EPON-2 are mutual
redundancies.

*When OLT Redundant Enable, Master must be different from Slave.

*Master port is working port. Slave port is redundant port.

*If ONUs have EPON-1 records in All Known Links in OLT, they can't
register in EPON-2 except delete the records of the ONUs first.
FK-C32 (redundant) #
```

rstp

Enter into OLT RSTP

SYNTAX

rstp

EXAMPLE

```
FK-C32 (olt) # rstp
FK-C32 (rstp) #
```

Table :OLT-RSTP Commands

Command	Function
rstp	Set OLT RSTP config
show	Show OLT RSTP command

rstp

Set OLT RSTP config

SYNTAX

rstp <1-16>/<0-1>

Parameter

<1-16> SLOT number
<0-1> 0: disabled, 1: pass Through

EXAMPLE

```
FK-C32 (rstp) # rstp 7 1
OLT 3723 doesn't need olt rstp
FK-C32 (rstp) #
```

show

Show OLT RSTP command

SYNTAX

show < rstp >/<1-16>

Parameter

<1-16>	SLOT number
rstp	Show OLT RSTP

EXAMPLE

```
FK-C32(rstp)# show rstp 7
OLT 3723 doesn't need olt rstp
FK-C32(rstp)#
```

sta

Enter into Statistic Information Management

SYNTAX

sta

EXAMPLE

```
FK-C32(olt)# sta
FK-C32(sta)#
```

Table :OLT-STA Commands

Command	Function
clear	Clear EPON OLT Port Statistics
show	Show EPON OLT Statistic

clear

Clear EPON OLT Port Statistics

SYNTAX

Clear <1-16>/<0-3>/<0-5>

Parameter

<1-16>	SLOT number
<0-3>	0:EPON Port-1, 1:EPON Port-2, 2:NNI Port-1, 3:NNI Port-2
<0-5>	0:OLT EPON LIF Transmit, 1:OLT EPON LIF Receive, 2:OLT EPON MAC Transmit, 3:OLT EPON MAC Receive, 4:OLT NNI Transmit, 5:OLT NNI Receive.

EXAMPLE

```
FK-C32(sta)# clear 7 0 0
FK-C32(sta)#
```

show

Show EPON OLT Statistic

SYNTAX

show <1-16>/<0-3>/<0-3>

Parameter

<1-16> SLOT number

<0-3> 0:EPON Port-1, 1:EPON Port-2, 2:NNI Port-1, 3:NNI Port-2

<0-3> OLT3723->0:EPON Port-1, 1:EPON Port-2, 2:NNI Port-1, 3:NNI Port-2, OLT3721->0:EPON Port, 1:CNI Port.

EXAMPLE

```
FK-C32(sta)# show 7 0 0
EPON Port-1 Statistics
Group : OLT EPON LIF Transmit
=====
Bytes Transmitted :4096
Frames Transmitted :64
FEC Blocks Transmitted :0
Laser Power :0
Laser VCC :0
Laser Bias :0
Laser Temperature :0
FK-C32(sta)#
```

tm

Enter into TM Information

SYNTAX

tm

EXAMPLE

```
FK-C32 (olt) # tm
FK-C32 (tm) #
```

Table :OLT-TM Commands

Command	Function
apply	Apply function
clear	Clear OLT Dynamic Table
del	Del Traffic Rule command
editmp	Edit function
show	Show Traffic Rule command
showtmp	Show function

apply

Apply function

SYNTAX

apply < filter-rule >/<1-16>/<0-3>/<0-19>

apply < filter3721-rule >/<1-16>/<0-1>/<0-3>/<WORD>

apply < link-filter >/<mac-address>/<1-16>/<2-5>/<0-1>/<WORD>

apply < link-filter3721 >/<mac-address>/<1-16>/<0-3>/<WORD>

Parameter

<1-16>	SLOT number
filter-rule	OLT 3723 port filter rule
filter3721-rule	OLT 3721 port filter rule
link-filter	OLT 3723 link filter rule
link-filter3721	OLT 3721 link filter rule
<0-3>	0: Epon-1, 1: Epon-2, 2: NNI-1, 3: NNI-2
<0-19>	rule no: rule index(0~19)
<0-1>	0: Epon-1, 1: NNI-1
<0-3>	priority: filter rule priority(0~3), suggested value: 3
<WORD>	Each clause separated by commas Clause no: clause index(0~19)
<mac-address>	link mac address
<2-5>	Priority: filter rule priority(2~5)
<0-1>	filter action: 0:set discard flag, 1:clear discard flag

EXAMPLE

```
FK-C32(tm) # apply filter-rule 7 0 10
FK-C32(tm) #

FK-C32(tm) # apply filter3721-rule 7 0 0 10
OLT 3723 use apply filter-rule
FK-C32(tm) #

FK-C32(tm) # apply link-filter 7 00-00-00-00-00-00 2 0 10
FK-C32(tm) #
```

clear

Clear OLT Dynamic Table

SYNTAX

clear < dynamactbl >/<1-16>

clear < link-dynamactbl >/<1-16>/<mac-address>

Parameter

<1-16>	SLOT number
dynamactbl	Clear OLT Dynamic Table
link-dynamactbl	Clear Link Dynamic Table
<mac-address>	link mac address

EXAMPLE

```
FK-C32(tm) # clear dynamactbl 7
FK-C32(tm) #

FK-C32(tm) # clear link-dynamactbl 7 00-00-00-00-00-00
FK-C32(tm) #
```

del

Clear OLT Dynamic Table

SYNTAX**del** < filter-rule >/<1-16>/<0-3>/<1-30>**del** < link-filter >/<1-16>/<mac-address>/<1-30>**Parameter**

<1-16>	SLOT number
filter-rule	Del OLT filter rule
link-filter	Del OLT link filter rule
<0-3>	0: Epon-1, 1: Epon-2, 2: NNI-1, 3: NNI-2
<1-30>	rule no: Before del filter-rule, you must display filter-rule
<mac-address>	link mac address

EXAMPLE

```
FK-C32(tm) # del filter-rule 7 0 10
FK-C32(tm) #

FK-C32(tm) # del link-filter 7 00-00-00-00-00-00 10
FK-C32(tm) #
```

editmp

Edit function

SYNTAX**editmp** < clause >/<0-19>/<1-17>/<0-7>/<0-3>/<WORD>**editmp** < clause3721 >/<0-19>/<0-6>/<0-7>**editmp** < clause3721 >/<0-19>/<0-6>/<0-7>/<0-3>/<WORD>**editmp** < rule >/<0-19>/<0-7>/<0-1>/<0-12>/<WORD>**Parameter**

clause	Edit clause template
clause3721	Edit clause template for OLT 3721
rule	Edit rule template
<0-19>	clause no: clause index(0~19)

<1-17>

Field select value:

- 1:Destination Mac,
- 2:Source Mac,
- 3:Ether Type,
- 4:Svlan0,
- 5:Svlan1,
- 6:Cvlan0,
- 7:Cvlan1,
- 8:Ip Priority,
- 9:IpV6 NextHeader,
- 10:Ip Ttl,
- 11:Ip Protocol,
- 12:Ip Source,
- 13:Ipv6 SourceUpper,
- 14:Ip Destination,
- 15:Ipv6 DestinationUpper
- 16:Source Port
- 17:Destination Port

<0-7>

Operation value:

- 0:Fail,
- 1:==,
- 2:!=,
- 3:<=,
- 4:>=,
- 5:exists,
- 6:!exist,
- 7:True,

<0-3>

Type: value type , 0:Hex , 1:Decimal , 2:IP format, 3:automatic. When field is User, can't select type automatically

<0-6>

Field select value:

- 0:L2 Dest Addr,
- 1:L2 Source Addr,
- 3:L2 Length/Type,
- 4:Eth VID,
- 6:IPv4 Protocol,

<0-3>

Type: value type , 0:Hex , 1:Decimal , 2,3:automatic.

<WORD>

Value: operation value(6 bytes),.e.g. 0040c7ddee00

<0-7>

Priority: rule template rule priority(0~7)

<0-1>	Action no: 0:set discard flag, 1:clear discard flag
<0-12>	Bitmap: 0:Automatic, 1:Epon-1, 2:Epon-2, 3:Epon-1& Epon-2, 4:NNI-1, 8:NNI-2, 12:NNI-1& NNI-2
<WORD>	Each clause separated by commas Clause no: clause index(0~19)

EXAMPLE

```
FK-C32(tm)# editmp clause 10 1 1 0 00000040c7ddee00
FK-C32(tm)#

FK-C32(tm)# editmp clause3721 10 5 3 3 0040c7ddee00
FK-C32(tm)#

FK-C32(tm)# editmp rule 10 7 1 10 10
FK-C32(tm)#
```

show

Show Traffic Rule command

SYNTAX

show < dynamactbl >/<1-16>
show < filter-rule >/<1-16>/<0-3>
show < link-filter >/<1-16>/<mac-address>

Parameter

<1-16>	SLOT number
dynamactbl	Show OLT Dynamic Table
filter-rule	Show OLT filter rule
link-filter	Show OLT link filter rule
<0-3>	0: Epon-1, 1: Epon-2, 2: NNI-1, 3: NNI-2
<mac-address>	link mac address

EXAMPLE

```
FK-C32(tm) # show dynamactbl 7
no.      link          mac
=====
FK-C32(tm) #
```

showtmp

Show function

SYNTAX**showtmp < clause/ clause3721/ rule >/<0-19>****showtmp < filter-rule >/<1-16>/<0-3>****showtmp < link-filter >/<1-16>/<mac-address>****Parameter**

clause	Show clause template
clause3721	Show clause template for OLT 3721
rule	Show rule template
<0-19>	Show clause template index

EXAMPLE

```
FK-C32(tm) # showtmp clause 10
no field-select      op      type      value
== =====
10 Destination Mac   ==      Hex      0x00000040c7ddee00

FK-C32(tm) #
FK-C32(tm) # showtmp clause3721 10
no field-select      op      type      value
== =====
10 User              <=      Hex      0x0040c7ddee00

FK-C32(tm) #
```

```
FK-C32(tm)# showtmp rule 10
rule template no      : 10
priority              : 7
action                : Clear Discard Flag;PortBitmap 0x00
field-select          : Destination Mac,
operation              : ==
value                 : 0x00000040c7ddee00
-----

FK-C32 (tm) #
```

4.18 ONU Commands of CLI

Table: ONU Commands

Command	Function
auth	Enter into Auth Information Management
bc	Enter into Bridging Config Information Management
dt	Enter dynamic table
flow-control	set Port Flow Control
green	Enter into ONU Green Pon
igmp	Enter Igmp Snooping Information
ionus-poll	IONU Digital-IO poll
ionus-wakeup	Wake up Many ONUs
lblink	Loopback Test on A Logical Link
lbport	Loopback Test Through Logical Link and ONU UNI Port
onu-reset	Reset EPON ONU
onu-restore	Restore EPON ONU
onus-restore	Restore EPON Many ONUs
onus-rstp	Set Many ONUs to one Link
rstp	Enter into RSTP command
show	Show ONU command
si	Enter into ONU Subscriber Information Management
speed-duplex	set Port Speed and Duplex
sta	Enter into Statistic Information Management
state	set Port State
tm	Enter into Traffic Management Information

flow-control

set Port Flow Control

SYNTAX

flow-control <1-16>/<mac-address> /<1-2>/<enable/disable>

Parameter

<1-16>	SLOT number
<mac-address>	ONU Mac Address
<1-2>	UNI Port 1 or 2
disable	Disable Port Flow Control
enable	Enable Port Flow Control

EXAMPLE

```
FK-C32 (onu) # flow-control 7 00-00-00-00-00-00 1 disable
FK-C32 (onu) #
```

ionus-poll

IONU Digital-IO poll

SYNTAX**ionus-poll** <onu-list>**Parameter**

<onu-list> OLT range : available from 1 to 16. 0: disable
For example, ionus-poll 1,2,5. ionus-poll 1-4
If ionus-poll 0, it will disable.
If ionus-poll 1-16, the OLTs with chip id 3721 will not set.

EXAMPLE

```
FK-C32 (onu) # ionus-poll 2
FK-C32 (onu) #
```

ionus-wakeup

Wake up Many ONUs

SYNTAX**ionus-wakeup** <1-16> <0-1> <onu-list>**Parameter**

<1-16> SLOT number
<0-1> 0: epon-1, 1: epon-2
<onu-list> ONUs range : available from 1 to 64. refer to onulist command

EXAMPLE

```
FK-C32 (onu) # ionus-wakeup 2 0 3
FK-C32 (onu) #
```

lblink

Loopback Test on A Logical Link

SYNTAX**lblink** <1-16>/<mac-address> /<1-1000>/<46-1500>/<0-4094>**Parameter**

<1-16>	SLOT number
<mac-address>	Link MAC Address, format : xx-xx-xx-xx-xx-xx
<1-1000>	Number of Frames, available from 1 to 10000, default:100
<46-1500>	Payload Size, available from 46 to 1500, default:100
<0-4094>	VLAN Tag, available from 0 to 4094, disable:0

EXAMPLE

```
FK-C32 (onu) # lblink 7 00-00-00-00-00-00 500 1000 1000
MAC Error
FK-C32 (onu) #
```

lbport

Loopback Test on A Logical Link

SYNTAX**lbport** <1-16>/<mac-address> /<1-2>/<1-2>/<1-1000>/<46-1500>/<0-4094>**Parameter**

<1-16>	SLOT number
<mac-address>	Link MAC Address, format : xx-xx-xx-xx-xx-xx
<1-2>	Port number
<1-2>	Location 1:Mac, 2:Phy
<1-1000>	Number of Frames, available from 1 to 10000, default:100
<46-1500>	Payload Size, available from 46 to 1500, default:100
<0-4094>	VLAN Tag, available from 0 to 4094, disable:0

EXAMPLE

```
FK-C32 (onu) # lbport 7 00-00-00-00-00-00 1 1 500 1000 1000
MAC Error
FK-C32 (onu) #
```

onu-reset

Reset EPON ONU

SYNTAX**onu-reset** <1-16><mac-address>**Parameter**

<1-16> SLOT number

<mac-address> ONU MAC Address, format : xx-xx-xx-xx-xx-xx

EXAMPLE

```
FK-C32 (onu) # onu-reset 7 00-00-00-00-00-00
FK-C32 (onu) #
```

onu-restore

Restore EPON ONU

SYNTAX**onu-restore** <1-16>**Parameter**

<1-16> SLOT number

<mac-address> ONU MAC Address, format : xx-xx-xx-xx-xx-xx

EXAMPLE

```
FK-C32 (onu) # onu-restore 7 00-00-00-00-00-00
FK-C32 (onu) #
```

onus-restore

Restore EPON Many ONUs

SYNTAX**onus-restore** <1-16>/<0-1>/<onu-list>**Parameter**

<1-16> SLOT number

<0-1> 0: epon-1, 1: epon-2

<onu-list> ONUs range : available from 1 to 64. refer to onulist command

EXAMPLE

```
FK-C32 (onu) # onus-restore 7 0 10
FK-C32 (onu) #
```

onus-rstp

Set Many ONUs to one Link

SYNTAX

onus-rstp <1-16>/<0-1>/<onu-list>

Parameter

<1-16>	SLOT number
<0-1>	0: epon-1, 1: epon-2
<onu-list>	ONUs range : available from 1 to 64. refer to onulist command

EXAMPLE

```
FK-C32 (onu) # onus-rstp 7 0 10
FK-C32 (onu) #
```

show

Show OLT command

SYNTAX

show< onulInfo/ onus >/<1-16>/<mac-address>

Parameter

onulInfo	Show General Information Of An ONU
onus	Show Registered ONUs
<1-16>	SLOT number
<mac-address>	ONU

EXAMPLE

```
FK-C32 (onu) # show onus 7 00-00-00-00-00-00

Port Link State  Auto Nego. Speed/Duplex Flow Control|
----  ----  -
1    Down Disable Disable    0/Half      Disable
2    Down Disable Disable    0/Half      Disable

FK-C32 (onu) #
```



```
FK-C32(onu)# show onuinfo 7 00-00-00-00-00-00
mac=00-00-00-00-00-00

Attribute
=====

Model Name
Serial Number
Output Optical Center Wavelength (nm)
Min. TX Power (dBm)
Max. TX Power (dBm)
Min. RX Operating Wavelength (nm)
Max. RX Operating Wavelength (nm)
RX Sensitivity (dBm)
RX Saturation Power (dBm)
Mac Address
Firmware Version
Chip ID
Chip Version
Boot Code Version
Personality Version
App0 Version
App1 Version

FK-C32(onu)#
```

speed-duplex

set Port Speed and Duplex

SYNTAX

speed-duplex<1-16>/<mac-address>/<1-2>/<10/100/1000/auto>

Parameter

<1-16>	SLOT number
<mac-address>	ONU
<1-2>	UNI Port 1 or 2
10	Speed
100	Speed
1000	Speed
auto	Auto Nego.

EXAMPLE

```
FK-C32 (onu) # speed-duplex 7 00-00-00-00-00-00 1 auto
FK-C32 (onu) #
```

state

set Port State

SYNTAX

state<1-16>/<mac-address>/<1-2>/<enable/disable>

Parameter

<1-16>	SLOT number
<mac-address>	ONU
<1-2>	UNI Port 1 or 2
disable	Disable Port state
enable	Enable Port state

EXAMPLE

```
FK-C32 (onu) # state 7 00-00-00-00-00-00 1 enable
FK-C32 (onu) #
```

auth

Enter into Auth Information Management

SYNTAX

auth

EXAMPLE

```
FK-C32 (onu) # auth
FK-C32 (auth) #
```

Table :ONU-AUTH Commands

Command	Function
add	Add one ONU to authorization list
authorize	Authorize onu in the olt
del	Del many ONUs from authorization list
do-import	Import onu config
profile	Set onu profile
show	Show onu authorization
unauthorize	Unauthorize onu in the olt

add

Add one ONU to authorization list

SYNTAX

add <1-16>/<0-1>/<mac-address> /<0-8>

Parameter

<1-16> SLOT number
<0-1> 0:EPON-1, 1:EPON-2
<mac-address> ONU
<0-8> Linknum: link number

EXAMPLE

```
FK-C32 (auth) # add 7 0 00-00-00-00-00-00 5
FK-C32 (auth) #
```

authorize

Authorize onu in the olt

SYNTAX

authorize <1-16>/<0-1>/<WORD>

Parameter

<1-16> SLOT number

<0-1> 0:EPON-1, 1:EPON-2
<WORD> Index: the index of the onu-auth. e.g. 2,5-7,9,11
Before authorize , you must first show onu-auth
Neither authorize, unauthorize nor del-onu when onu is registering

EXAMPLE

```
FK-C32(auth)# authorize 7 0 7-9
FK-C32(auth)#
```

del

Delete many ONUs from authorization list

SYNTAX

del <1-16>/<0-1>/<WORD>

Parameter

<1-16> SLOT number
<0-1> 0:EPON-1, 1:EPON-2
<WORD> Index: the index of the onu-auth. e.g. 2,5-7,9,11
Before authorize , you must first show onu-auth
Neither authorize, unauthorize nor del-onu when onu is registering

EXAMPLE

```
FK-C32(auth)# del 7 0 9
FK-C32(auth)#
```

do-import

Import onu config

SYNTAX

do-import <1-16> <0-1> <WORD>

Parameter

<1-16> SLOT number
<0-1> 0:EPON-1, 1:EPON-2
<WORD> Index: the index of auth. e.g. 2,5-7,9,11
Before do-import, you must first show auth

EXAMPLE

```
FK-C32(auth)# do-import 1 0 2
FK-C32(auth)#
```

profile

Set onu profile

SYNTAX

profile <1-16> <0-1> <mac-address> <WORD>

Parameter

<1-16>	SLOT number
<0-1>	0:EPON-1, 1:EPON-2
<mac-address>	ONU
<WORD>	profile: ONU's profile name. Means to clean profile

EXAMPLE

```
FK-C32(auth)# profile 1 0 b8-26-d4-02-bb-80 onub826d4003308.xml
FK-C32(auth)#
```

show

Show onu authorization

SYNTAX

show <1-16>/<0-1>

Parameter

<1-16>	SLOT number
<0-1>	0:EPON-1, 1:EPON-2

EXAMPLE

```
FK-C32(auth)# show 7 0
Idx ONU-MAC          Link #  Status          Mark  Authorized
=== =====
FK-C32(auth)#
```

unauthorize

Unauthorize onu in the olt

SYNTAX

unauthorize <1-16>/<0-1>

Parameter

<1-16>	SLOT number
<0-1>	0:EPON-1, 1:EPON-2
<WORD>	Index: the index of the onu-auth. e.g. 2,5-7,9,11 Before authorize , you must first show onu-auth Neither authorize, unauthorize nor del-onu when onu is registering

EXAMPLE

```
FK-C32(auth)# unauthorize 7 0 7-8
FK-C32(auth)#
```

bc

Enter into Bridging Config Information Management

SYNTAX

bc

EXAMPLE

```
FK-C32(onu)# bc
FK-C32(bc)#
```

Table :ONU-BC Commands

Command	Function
age_limit	EPON ONU Bridging Config Age Limit.
broadcast-que	Set onu Broadcast Queue
entry_limit	EPON ONU Bridging Config Entry Limit.
eth	EPON ONU VLAN Option Ethertype.
learning_mode	EPON ONU Bridging Config Learning Mode.
show	Show EPON ONU Bridging Config Information
tag_down	Set EPON ONU VLAN Tag Up Mode
tag_up	Set EPON ONU VLAN Tag Up Mode

age_limit

EPON ONU Bridging Config Age Limit.

SYNTAX

age_limit <1-16>/< mac-address >/<1-2>/<0-32768>

Parameter

<1-16>	SLOT number
<mac-address>	ONU
<1-2>	1:Port 1, 2:Port 2.
<0-32768>	(Unit:8.75ms), available from 0 to 32768.

EXAMPLE

```
FK-C32(bc)# age_limit 7 00-00-00-00-00-00 1 10000
FK-C32(bc)#
```

broadcast-que

Set onu Broadcast Queue

SYNTAX

broadcast-que <1-16> / < mac-address > / <1-2> / <0-255>

Parameter

<1-16>	SLOT number
<mac-address>	ONU
<1-2>	1:Port 1, 2:Port 2
<0-255>	Queue index: Queue Idx maximum : 255 (disable automatic broadcast handling)

EXAMPLE

```
FK-C32(bc)# broadcast-que 7 00-00-00-00-00-00 1 100
FK-C32(bc)#
```

entry_limit

EPON ONU Bridging Config Entry Limit.

SYNTAX

entry_limit <1-16> / < mac-address > / <1-2> / <0-64>

Parameter

<1-16>	SLOT number
<mac-address>	ONU
<1-2>	1:Port 1, 2:Port 2.
<0-64>	Entry Limit, available from 0 to 64.

EXAMPLE

```
FK-C32(bc) # entry_limit 7 00-00-00-00-00-00 1 30
FK-C32(bc) #
```

eth

EPON ONU VLAN Option Ethertype.

SYNTAX

eth <1-16>/< mac-address >/<WORD>

Parameter

<1-16>	SLOT number
<mac-address>	ONU
<WORD>	(hexadecimal)

EXAMPLE

```
FK-C32(bc) # eth 7 00-00-00-00-00-00 ff
FK-C32(bc) #
```

learning_mode

EPON ONU Bridging Config Learning Mode.

SYNTAX

learning_mode <1-16>/< mac-address >/<1-2>/<0-1>

Parameter

<1-16>	SLOT number
<mac-address>	ONU
<1-2>	1:Port 1, 2:Port 2.
<0-1>	Learning mode, 0: Forward (802.1d Learning), 1: Drop Until Learned (MAC Access Control)

EXAMPLE

```
FK-C32(bc) # learning_mode 7 00-00-00-00-00-00 1 0
FK-C32(bc) #
```

show

Show EPON ONU Bridging Config Information

SYNTAX

show <1-16>/< mac-address >

Parameter

<1-16>	SLOT number
<mac-address>	ONU

EXAMPLE

```
ONU VLAN Option :
=====
Vlan Ether Type :   0x 0
Tag UP :   Disable
Tag Down :   Disable

ONU Broadcast Queue :
=====
Port : 1, Queue index : 0
Port : 2, Queue index : 0
FK-C32(bc) #
```

```
FK-C32(bc) # show 7 00-00-00-00-00-00
ONU Bridging Config :
=====
Port 1 :
  Age Limit (8.75ms) :   0
  Entry Limit (Entries) :   0
  Learning Mode :   0: Forward (802.1d Learning)
Port 2 :
  Age Limit (8.75ms) :   0
  Entry Limit (Entries) :   0
  Learning Mode :   0: Forward (802.1d Learning)
```

tag_down

Set EPON ONU VLAN Tag Up Mode

SYNTAX

tag_down <1-16>/< mac-address >/<enable/disable>

Parameter

<1-16>	SLOT number
<mac-address>	ONU
disable	Disable EPON ONU VLAN Tag Down
enable	Enable EPON ONU VLAN Tag Down

EXAMPLE

```
FK-C32(bc)# tag_down 7 00-00-00-00-00-00 enable
FK-C32(bc)#
```

tag_up

Set EPON ONU VLAN Tag Up Mode

SYNTAX

tag_up <1-16> / < mac-address > / <enable/disable>

Parameter

<1-16>	SLOT number
<mac-address>	ONU
disable	Disable EPON ONU VLAN Tag Down
enable	Enable EPON ONU VLAN Tag Down

EXAMPLE

```
FK-C32(bc)# tag_up 7 00-00-00-00-00-00 enable
FK-C32(bc)#
```

dt

Enter dynamic table

SYNTAX

dt

EXAMPLE

```
FK-C32(onu)# dt
FK-C32(dt)#
```

Table :ONU-DT Commands

Command	Function
clear	Clear onu dynamic table
show	Show onu dynamic table

clear

Clear onu dynamic table

SYNTAX

Clear < dynamactbl >/<1-16>/<mac-address>/<1-2>

Parameter

<1-16>	SLOT number
dynamactbl	Clear ONU Dynamic Table
<mac-address>	ONU
<1-2>	ONU

EXAMPLE

```
FK-C32(dt)# clear dynamactbl 7 00-00-00-00-00-00 1
FK-C32(dt)#
```

show

Show onu dynamic table

SYNTAX

show < dynamactbl >/<1-16>/<mac-address>

Parameter

<1-16>	SLOT number
dynamactbl	Clear ONU Dynamic Table
<mac-address>	ONU

EXAMPLE

```
FK-C32(dt)# show dynamactbl 7 00-00-00-00-00-00
onu = 00-00-00-00-00-00
no.   port  mac
=====
FK-C32(dt) #
```

green

Enter into ONU Green Pon

SYNTAX

green

EXAMPLE

```
FK-C32(onu) # gree
FK-C32(green) #
```

Table :ONU-GREEN Commands

Command	Function
green	Set ONU Green Pon.
show	Show ONU command

green

Set ONU Green Pon.

SYNTAX

green <1-16>/<mac-address> /<0-1>

Parameter

<1-16>	SLOT number
<mac-address>	ONU
<0-1>	0: disable, 1: enable

EXAMPLE

```
FK-C32 (green) # green 7 00-00-00-00-00-00 0
FK-C32 (green) #
```

show

Show ONU command

SYNTAX

show <1-16>/<green>/<mac-address>

Parameter

<1-16>	SLOT number
green	Show ONU Green Pon
<mac-address>	ONU

EXAMPLE

```
FK-C32 (green) # show green 7 00-00-00-00-00-00
ONU Green Pon                :disable
ONU Optical Power Save       :disable
LUE Stat Index               :0
Power Down Transmit Laser    :off
Power Down Receive Laser     :off
Power Down Serdes            :off
FK-C32 (green) #
```

igmp

Enter Igmp Snooping Information

SYNTAX

igmp

EXAMPLE

```
FK-C32 (onu) # igmp
FK-C32 (igmp) #
```

Table :ONU-IGMP Commands

Command	Function
action	Set Action for Unmanaged Groups
add	Add ONU IGMP Snooping Parameters
del	Delete ONU IGMP Snooping Parameters
edit	Edit ONU IGMP VLAN Provisioning
show	Show Igmp Snooping Information command
snooping	Set Igmp Snooping

action

Set Action for Unmanaged Groups

SYNTAX

action <1-16>/<mac-address>/<0-1>

Parameter

<1-16>	SLOT number
<mac-address>	ONU
<0-1>	act: Action for Unmanaged Groups
	0: Discard (block IPMC, IGMP)
	1: Ignore (forward unchanged)

EXAMPLE

```
FK-C32 (igmp) # action 7 00-00-00-00-00-00 1
FK-C32 (igmp) #
```

add

Add ONU IGMP Snooping Parameters

SYNTAX

Add <vlan>/<1-16>/<mac-address>/<0-4094>/<0-4094>/<0-255>

Parameter

<1-16>	SLOT number
<mac-address>	ONU
vlan	Add ONU IGMP VLAN
<0-4094>	EPON VID
<0-4094>	User VID

<0-255>

MaxGroups: available from 0 to 255.

EPON VID must be the same as User VID.

If you add onu IGMP Vlan Provisioning entry when action is ignore,
you must disable onu IGMP snooping first.

EXAMPLE

```
FK-C32(igmp)# add vlan 7 00-00-00-00-00-00 1000 1000 100
FK-C32(igmp)#
```

del

Delete ONU IGMP Snooping Parameters

SYNTAX**del** <vlan>/<1-16>/<mac-address>/<1-16>**Parameter**

<1-16>	SLOT number
<mac-address>	ONU
vlan	Add ONU IGMP VLAN
<1-16>	vlan group number

If you add onu IGMP Vlan Provisioning entry when action is ignore,
you must disable onu IGMP snooping first.

EXAMPLE

```
FK-C32(igmp)# del vlan 7 00-00-00-00-00-00 10
FK-C32(igmp)#
```

edit

Edit ONU IGMP VLAN Provisioning

SYNTAX**Edit** <vlan>/<1-16>/<mac-address>/<0-4094>/<0-4094>/<0-255>**Parameter**

<1-16>	SLOT number
<mac-address>	ONU
vlan	Add ONU IGMP VLAN
<0-4094>	EPON VID
<0-4094>	User VID

<0-255>

MaxGroups: available from 0 to 255.

EPON VID must be the same as User VID.

If you add onu IGMP Vlan Provisioning entry when action is ignore,
you must disable onu IGMP snooping first.

EXAMPLE

```
FK-C32(igmp)# edit vlan 7 00-00-00-00-00-00 1000 1000 100
FK-C32(igmp)#
```

show

Show Igmp Snooping Information command

SYNTAX**show** <joined / snooping / vlan >/<1-16>/<mac-address>**Parameter**

<1-16>	SLOT number
joined	Show IGMP Groups Joined
snooping	Show Igmp Snooping
vlan	Show IGMP VLAN Provisioning
<mac-address>	ONU

EXAMPLE

```
FK-C32(igmp)# show snooping 7 00-00-00-00-00-00

Robustness Count           : 0
Last Member Query          : 0
Port 1 Number Of IGMP Groups : 0
    Queue For Classification: 0
Port 2 Number Of IGMP Groups : 0
    Queue For Classification: 0
Forward Group by L2 DA: no
Forward Group by VID: no
Forward Group by IP DA: no

FK-C32(igmp)#
```


snooping

Set Igmp Snooping

SYNTAX**snooping** <1-16>/<mac-address>/<0-12>/<0-12>/<0-90>/<0-6>/<0-90>/<0-6>/<0-1>/<0-1>/<0-1>**Parameter**

<1-16> SLOT number

<mac-address> ONU

<0-12> RC: Robustness Count

<0-12> LMQ: Last Member Query

<0-90> NG1: Number Of IGMP Groups (Port 1)

<0-6> QC1: Queue For Classification (Port 1)

<0-90> NG2: Number Of IGMP Groups (Port 2)

<0-6> QC2: Queue For Classification (Port 2)

<0-1> FWbyL2DA: Forward Group by L2 DA.

Available Values are '1' = (yes) or '0' = (no).

<0-1> FWbyVID: Forward Group by VID.

Available Values are '1' = (yes) or '0' = (no).

<0-1> FWbyIPDA: Forward Group by IP DA.

Available values are '1' = (yes) or '0' = (no).

Note: At least one of <FWbyL2DA> and <FWbyIPDA> must be (yes).

Note: The total IGMP groups of Port 1 and 2 should not be more than 90.

EXAMPLE

```
FK-C32(igmp)# snooping 7 00-00-00-00-00-00 10 5 50 6 60 6 0 1 1
FK-C32(igmp)#
```

rstp

Enter into RSTP command

SYNTAX**rstp****EXAMPLE**

```
FK-C32(onu)# rstp
FK-C32(rstp)#
```

Table :ONU-RSTP Commands

Command	Function
rstp	Set rstp control config
show	Show onu rstp config

rstp

Set rstp control config

SYNTAX

rstp <1-16> <mac-address> <0-1>

Parameter

<1-16> SLOT number
<mac-address> ONU
<0-1> 0: disabled, 1: pass Through

EXAMPLE

```
FK-C32(rstp)# rstp 1 b8-26-d4-02-bb-80 1
FK-C32(rstp)#
```

show

Show onu rstp config

SYNTAX

show < rstp >/<1-16>/<mac-address>

Parameter

<1-16> SLOT number
rstp Show OLT RSTP
<mac-address> ONU

EXAMPLE

```
FK-C32(rstp)# show rstp 7 00-00-00-00-00-00
onu = 00-00-00-00-00-00
FK-C32(rstp)#
```

si

Enter into ONU Subscriber Information Management

SYNTAX

si

EXAMPLE

```
FK-C32 (onu) # si
FK-C32 (si) #
```

Table :ONU-STA Commands

Command	Function
alias	Set ONU Alias Name.
contact	Set ONU Contact.
del	Delete ONU Alias Name
descrip	Set ONU Description.
location	Set ONU location.
show	Show ONU command
telephone	Set ONU telephone.

alias

Set ONU Alias Name.

SYNTAX

alias <1-16>/<mac-address>/<WORD>

Parameter

<1-16>	SLOT number
<mac-address>	ONU
<WORD>	ONU alias name

EXAMPLE

```
FK-C32 (si) # alias 7 00-00-00-00-00-00 fisa
FK-C32 (si) #
```

contact

Set ONU Contact.

SYNTAX

contact <1-16>/<mac-address>/<WORD>

Parameter

<1-16>	SLOT number
<mac-address>	ONU
<WORD>	ONU contact

EXAMPLE

```
FK-C32(si)# contact 7 00-00-00-00-00-00 David
FK-C32(si)#
```

del

Delete ONU Alias Name

SYNTAX

del < alias >/<1-16>/<mac-address>

Parameter

<1-16>	SLOT number
alias	Delete ONU Alias Name
<mac-address>	ONU

EXAMPLE

```
FK-C32(si)# del alias 7 00-00-00-00-00-00
FK-C32(si)#
```

descrip

Set ONU Description.

SYNTAX

descrip <1-16>/<mac-address>

Parameter

<1-16>	SLOT number
<mac-address>	ONU

EXAMPLE

```
FK-C32(si)# descrip 7 00-00-00-00-00-00 contact_fisa
FK-C32(si)#
```

location

Set ONU location

SYNTAX

location <1-16> <mac-address> <WORD>

Parameter

<1-16>	SLOT number
<mac-address>	ONU
<WORD>	ONU location

EXAMPLE

```
FK-C32(si)# location 1 b8-26-d4-02-bb-80 laboratorio
FK-C32(si)#
```

show

Show ONU command

SYNTAX

show < alias >/<1-16>/<mac-address>

show < allalias >/<1-16>

Parameter

<1-16>	SLOT number
alias	Show ONU Alias
allalias	Show all ONU Alias
<mac-address>	ONU

EXAMPLE

```
FK-C32(si)# show alias 7 00-00-00-00-00-00
Alias Name      :
Location       :
Contact        :
Phone Number   :
Description    :
FK-C32(si)#
```

```
FK-C32(si)# show allalias 7
All Pages : 1 , current page : 7
no entry
FK-C32(si)#
```

telephone

Set ONU telephone.

SYNTAX

telephone <1-16>/<mac-address>/<WORD>

Parameter

<1-16>	SLOT number
<mac-address>	ONU
<WORD>	ONU telephone

EXAMPLE

```
FK-C32 (si) # telephone 7 00-00-00-00-00-00 29221234
FK-C32 (si) #
```

sta

Enter into Statistic Information Management

SYNTAX

sta

EXAMPLE

```
FK-C32 (onu) # sta
FK-C32 (sta) #
```

Table :OLT-STA Commands

Command	Function
clear	Clear EPON ONU Port Statistics
show	Show EPON ONU Statistic

clear

Clear EPON ONU Port Statistics

SYNTAX

Clear <1-16>/<mac-address> /<0-2>/<0-1>

Parameter

<1-16>	SLOT number
<mac-address>	ONU
<0-2>	0:EPON Port, 1:UNI Port 1, 2:UNI Port 2
<0-1>	0:Transmit, 1:Receive,0:upstream, 1:downstream(OLT 3721)

EXAMPLE

```
FK-C32 (sta) # clear 7 00-00-00-00-00-00 0 0
FK-C32 (sta) #
```

show

Show EPON ONU Statistic

SYNTAX

show <1-16>/<mac-address> /<0-2>/<0-1>

Parameter

<1-16>	SLOT number
<mac-address>	ONU
<0-2>	0:EPON Port, 1:UNI Port 1, 2:UNI Port 2
<0-1>	0:Transmit, 1:Receive,0:upstream, 1:downstream(OLT 3721)

EXAMPLE

```
FK-C32(sta)# show 7 00-00-00-00-00-00 0 0
EPON Port Statistics
Direction : Transmit

Bytes :0
Frames :0
Unicast Frames :0
Multicast Frames :0
Broadcast Frames :0
64-Byte Frames :0
65-127 Byte Frames :0
128-255 Byte Frames :0
256-511 Byte Frames :0
512-1023 Byte Frames :0
1024-1518 Byte Frames :0
Greater than 1518 Byte Frames :0
Byte Dropped :0
Frames Dropped :0
Bytes Delayed :0
Maximum Delay :0
Delay Threshold :0
Unused Bytes :0
FK-C32(sta)#
```

tm

Enter into Traffic Management Information

SYNTAX

tm

EXAMPLE

```
FK-C32(onu)# tm
FK-C32(tm)#
```


Table :ONU-TM Commands

Command	Function
apply	Apply function
del	Delete function
deltmp	Delete function
editmp	Edit function
hint	Hint function
loadtmp	Load function
show	Show EPON ONU Traffic Management Information
showtmp	Show function
target	Set target onu

apply

Apply function

SYNTAX**apply** < field >/<0-4>/<1-16>/<mac-address>/<0-2>**apply** < queue >/<0-4>/<1-16>/<mac-address>**apply** < rule >/<0-19>/<0-2>**Parameter**

<1-16> SLOT number

field Apply field select template**queue** Apply queue template**rule** Apply rule template

<0-4> template no : 0~4

<1-16> SLOT number

<mac-address> ONU, up max queue # is 10, down max queue # is 16 up queue max size is 236,down queue max size is 55

<0-2> ONU port no, 0-epon port, 1,2-user port

<0-19> Rule template no : 0~19

<0-2> Source port: ONU port. 0-epon port(downstream), 1,2-user port(upstream)

EXAMPLE

```
FK-C32(tm) # apply field 0 7 00-00-00-00-00-00 0
Field select template 0 has blank entrys and can't be set.
FK-C32(tm) #

FK-C32(tm) # apply queue 0 7 00-00-00-00-00-00
FK-C32(tm) #

FK-C32(tm) # apply rule 10 0
FK-C32(tm) #
```

del

Delete function

SYNTAX**del** <rule> <1-16> <mac-address><0-2><1-19>**Parameter**

rule	Delete rule
<1-16>	SLOT number
<mac-address>	ONU
<0-2>	0:EPON Port, 1:UNI Port 1, 2:UNI Port 2
<1-19>	rule index

EXAMPLE

```
FK-C32(tm) # del rule 9 b8-26-d4-02-bb-80 0 1
FK-C32(tm) #
```

deltmp

Delete function

SYNTAX**deltmp** < upq >/<0-4>/<1-7>**Parameter**

upq	Delete up queue template
<0-4>	Up stream queue template no(0~4)
<1-7>	Up stream queue llid index

EXAMPLE

```
FK-C32(tm) # deltmp upq 0 5
FK-C32(tm) #
```

editmp

Edit function

SYNTAX

```
editmp < action > /<0-19> /<0-29>
editmp < action > /<0-19> /<0-29> /<1-4094>
editmp < action > /<0-19> /<0-29> /<1-4094> /<0-8>
editmp < clause > /<0-19> /<0-1> /<0-10> /<0-7>
editmp < clause > /<0-19> /<0-1> /<0-10> /<0-7> /<0-3> /<WORD>
editmp < downq > /<0-4> /<1-2> /<WORD>
editmp < field > /<0-4> /<0-10> /<0-6> /<0-9> /<0-31> /<1-32>
editmp < field_index > /<0-4> /<0-10> /<0-37>
editmp < rule > /<0-19> /<8-13> /<0-19> /<WORD>
editmp < upq > /<0-4> /<0-7> /<WORD>
```

Parameter

action	Edit action template
clause	Edit clause template
downq	Edit down queue template
field	Edit down queue template
field_index	Edit down queue template
rule	Edit rule template
upq	Edit up queue template
<0-19>	Action template index(0~19)
<0-29>	Action value (using "hint action" value)
<1-4094>	Action param 1: action needed parameter Action param 2: action needed parameter Action value 2, 18 need 2 params Action value 5,6,8,21,22,24 need only 1 param Others need no param Example: edimpt action 0 2(Set Destination) 0(port/lid index) 0(queue) Example: editmp action 0 5(Set VID; Add Vlan Tag) 100(vid) Example: editmp action 0 6(Set COS) 5(cos)
<0-8>	Action param 1: action needed parameter Action param 2: action needed parameter

	Action value 2, 18 need 2 params
	Action value 5,6,8,21,22,24 need only 1 param
	Others need no param
	Example: edimpt action 0 2(Set Destination) 0(port/llid index) 0(queue)
	Example: editmp action 0 5(Set VID; Add Vlan Tag) 100(vid)
	Example: editmp action 0 6(Set COS) 5(cos)
<0-1>	Direction: 1-upstream, 0-downstream
<0-10>	Field select value: (using "hint clause" field selects-value)
<0-7>	Op: operation (using "hint clause" operation-value). if op=0, 5,6,7, it doesn't need type and value
<0-3>	Type: value type , 0:Hex , 1:Decimal , 2:IP format, 3:automatic. When field is User, can't select type automatically
<WORD>	Value: operation value. Show help using "hint clause"
<0-4>	Down stream queue template no(0~4)
<1-2>	Port no: downstream port no, 1: port 1, 2: port 2
	0 is invalid, each port queue # Maximum is 8
	down queue max queue # is 16
<WORD>	Each queue separated by commas
	Queue Size Minimum is 2, queue Size Maximum is 100
	If up size is 1~46, total down max size is 248
	If up size is 47~110, total down max size is 184
	If up size is 111~174, total down max size is 120
	If up size is 175~238, total down max size is 56
	Up size plus down size should not be larger than 294
<0-4>	Field select template no(0~4)
<0-10>	Field select template index
<0-6>	Layer select: 1:Ethernet Header, 2:Ether Type, 3:VLAN/L2-Frame, 5:Ipv4-Header, 6:Ipv4-Msc
<0-9>	Dword: dword offset, depend on layer select. refer to field-pattern
<0-31>	Bit offset: point to particular areas of interest in a frame. refer to field-pattern
<1-32>	Field width: point to particular areas of interest in a frame
<0-37>	Field patterns index: represent the index using field-pattern command
<0-19>	Rule no: rule index(0~19)
<8-13>	Priority: rule template rule priority(8~13)
<WORD>	Each clause separated by commas
	Clause no: clause index(0~19)
<0-4>	Up stream queue template no(0~4)

<0-7>

Up stream queue llid index, each queue # max is 8
up queue max queue # is 10

EXAMPLE

```
FK-C32(tm)# editmp action 10 15 1000 6
FK-C32(tm)#

FK-C32(tm)# editmp clause 10 1 5 5 0 99
FK-C32(tm)#
```

```
FK-C32(tm)# editmp downq 0 1 100
FK-C32(tm)#

FK-C32(tm)# editmp field 0 5 3 8 30 25
index Name                LayerSel DWord BitOffset FieldWidth
=====
5      User                3        8      30        25
FK-C32(tm)#

FK-C32(tm)# editmp field_index 0 5 30
index Name                LayerSel DWord BitOffset FieldWidth
=====
5      TCP Offset          6        3      28         4
FK-C32(tm)#

FK-C32(tm)# editmp rule 10 12 10 17
FK-C32(tm)#

FK-C32(tm)# editmp upq 0 0 100
FK-C32(tm)#
```

hint

Hint function

SYNTAX**hint** < action / clause >

Parameter

action Hint action
clause Hint clause

EXAMPLE

```
FK-C32(tm)# hint action
```

Action	Value	Parameters
No operation	0	
Reserved	1	
Set Destination	2	port no/link index, queue index
Add VLAN Tag	3	
Delete VLAN Tag	4	
Set VID;Add VLAN Tag	5	vid
Set COS	6	cos
Delete Tag; Add Tag	7	
Delete Tag; Add Tag;Set VID	8	vid
Clear Add Tag	9	
Clear Del Tag	10	
Clear Del Tag and Add Tag	11	
Copy field to COS	12	
Copy field to VID	13	
Discard	14	
Reserved	15	
Forward	16	
Reserved	17	
Set Destination; Forward	18	port no/link index, queue index
Add Tag;Forward	19	
Delete Tag;Forward	20	
Set VID; Add Tag;Forward	21	vid
Set COS; Forward	22	cos
Delete Tag;Add Tag;Forward	23	
Delete Tag;Add Tag;Set VID; Forward	24	vid
Clear Add Tag;Forward	25	
Clear Del Tag;Forward	26	
Clear Del Tag and Add Tag;Forward	27	
Copy field to COS; Forward	28	

loadtmp

Load function

SYNTAX**loadtmp** < field > / < 0-2 > / < 0-4 >**loadtmp** < queue > / < 1-16 > / < mac-address > / < 0-4 >**Parameter**

field	Show field select and load to field select template
queue	Show queue config and load to queue template
< 0-2 >	ONU port no, 0-epon port, 1,2-user port
< 0-4 >	Field select template no(0~4)
< 1-16 >	SLOT number
< mac-address >	ONU
< 0-4 >	Queue template no(0~4)

EXAMPLE

```
FK-C32(tm) # loadtmp field 0 2
FK-C32(tm) #

FK-C32(tm) # loadtmp queue 7 00-00-00-00-00-00 2
FK-C32(tm) #
```

show

Show EPON ONU Traffic Management Information

SYNTAX**show** < field/ rule > / < 1-16 > / < mac-address > / < 0-2 >**show** < quecfg > / < 1-16 > / < mac-address >**show** < target >**Parameter**

field	Show ONU Field Selects
quecfg	Show ONU Queue Config
rule	Show ONU Rule Table
target	Show target onu
< 1-16 >	SLOT number
< mac-address >	ONU
< 0-2 >	0:EPON Port, 1:UNI Port 1, 2:UNI Port 2

EXAMPLE

```
FK-C32(tm) # show field 7 00-00-00-00-00-00 0
EPON ONU Field Selects
```

Index	Name	RefCount	LayerSel	DWord	BitOffset	FieldWidth
1		0	0	0	0	0
2		0	0	0	0	0
3		0	0	0	0	0
4		0	0	0	0	0
5		0	0	0	0	0
6		0	0	0	0	0
7		0	0	0	0	0
8		0	0	0	0	0
9		0	0	0	0	0
10		0	0	0	0	0
11		1	0	0	0	0

```
FK-C32(tm) #

FK-C32(tm) # show target
onu mac = 00-00-00-00-00-00
FK-C32(tm) #
```

showtmp

Show function

SYNTAX

showtmp < action / clause/ rule >

showtmp < action / clause/ rule >/<0-19>

show < field / queue >/<0-4>

Parameter

action	Show action template
clause	Show clause template
field	Show field template
queue	Show queue template
rule	Show rule template
<0-19>	Show action template index
<0-4>	template no : 0~4

EXAMPLE

```
FK-C32(tm)# showtmp field 2
field-select template 2

index      Name      Layer-Select  DWord  Bit-Offset  Field-Width
=====

Field-select template 0 can be saved to flash when save start.
Othe field-select template won't be saved when save start.

FK-C32(tm)#
```

```
FK-C32(tm)# showtmp queue 2
Up-stream queue config template 2 (increment 4k) :
link-index  queue set
=====

Down-stream queue config template 2 (increment 4k) :
port-no     queue set
=====

FK-C32(tm)#
```

target

Set target onu

SYNTAX**target** <1-16> </mac-address>**Parameter**

<1-16> SLOT number

<mac-address> ONU

EXAMPLE

```
FK-C32(tm)# target 7 00-00-00-00-00-00
onu mac = 00-00-00-00-00-00

Down stream not response, can't show onu field select
Up stream not response, can't show onu field select

FK-C32(tm)#
```

4.19 Privilege Commands of CLI

Table : Privilege Commands

Command	Function
group	Configure a privilege level group
show	Show privilege configuration

group

Configure a privilege level group

SYNTAX

Group <group-name>/<1-15>

Parameter

<group-name> Privilege group name: including Account, Diagnostics, IP, Maintenance, OLT, ONU, SMTP, SNMP, Security, System, Trap_Event, login_protect

<1-15> Privilege level

EXAMPLE

```
FK-C32(privilege)# group snmp 10
FK-C32(privilege)#
```

show

Show privilege configuration

SYNTAX

show

EXAMPLE

```
FK-C32(privilege)# show
Privilege Current Level: 15

Group Name                      Privilege Level
-----
Account                        11
Diagnostics                    11
IP                             11
Loop_Protect                   11
Maintenance                    11
OLT                             11
ONU                             11
SMTP                           11
SNMP                           10
Security                       11
System                         11
Trap_Event                     11
UPnP                           11
Voice_VLAN                     11
login_protect                  11
FK-C32(privilege)#
```

4.20 REBOOT of CLI

reboot

Reboot the sistem

SYNTAX

reboot

EXAMPLE

```
FK-C32# reboot
FK-C32# +M25PXX : Init device with JEDEC ID 0xC22018.
Luton26 board detected (VSC7425 Rev. B).

RedBoot(tm) bootstrap and debug environment [ROMRAM]
Non-certified release, version 1_12-Vitesse - built 19:19:16, Apr 18 2011

Copyright (C) 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Free Software Foundation, Inc.

RedBoot is free software, covered by the eCos license, derived from the
GNU General Public License. You are welcome to change it and/or distribute
copies of it under certain conditions. Under the license terms, RedBoot's
source code and full license terms must have been made available to you.
Redboot comes with ABSOLUTELY NO WARRANTY.

Platform: VCore-III (MIPS32 24KEc) LUTON26
RAM: 0x80000000-0x84000000 [0x80021198-0x83fe1000 available]
FLASH: 0x40000000-0x40ffffff, 256 x 0x10000 blocks
== Executing boot script in 1.000 seconds - enter ^C to abort
RedBoot> fis load -d managed
Image loaded from 0x80040000-0x80785550
RedBoot> go

Username:
```

4.21 SMTP of CLI

Table : SMTP Commands

Command	Function
delete	Delete command
level	Configure Severity level
mail-address	Configure email user name
return-path	Configure email sender
sender	Configure email sender
server	Configure email server
show	Show email configuration
username	Configure email user name

delete

Delete command

SYNTAX

delete <mail-address>/<1-6>

delete <return-path>

delete < sender >

delete < server>

delete < username >

Parameter

mail-address	Delete email address
return-path	Delete return path
sender	Delete sender
server	Delete email server
username	Delete username and password
<1-6>	Delete email address id

EXAMPLE

```
FK-C32 (smtp) # delete mail-address 6
FK-C32 (smtp) #

FK-C32 (smtp) # delete return-path
FK-C32 (smtp) #

FK-C32 (smtp) # delete sender
FK-C32 (smtp) #

FK-C32 (smtp) # delete server
FK-C32 (smtp) #

FK-C32 (smtp) # delete username
FK-C32 (smtp) #
```

level

Delete command

Syntax

level <Severity level>

Parameter

<Severity level> To configure the Severity level, the available value is from 0 to 7.

- <0> Emergency: system is unusable.
- <1> Alert: action must be taken immediately.
- <2> Critical: critical conditions.
- <3> Error: error conditions.
- <4> Warning: warning conditions.
- <5> Notice: normal but significant condition.
- <6> Informational: informational messages.
- <7> Debug: debug-level messages.

EXAMPLE

```
FK-C32 (smtp) # level 7
FK-C32 (smtp) #
```

mail-address

Configure email user name

Syntax

mail-address <1-6>/<mail-address>

Parameter

<1-6>	Email address index
<mail-address>	Up to 47 characters describing mail address

EXAMPLE

```
FK-C32 (smtp) # mail-address 6 furukawa@mail.com
FK-C32 (smtp) #
```

return-path

Configure email sender

Syntax

return-path < return-path >

Parameter

<return-path>	Up to 47 characters describing return path
---------------	--

EXAMPLE

```
FK-C32 (smtp) # return-path mail-address
FK-C32 (smtp) #
```

sender

Configure email sender

Syntax

sender < sender >

Parameter

< sender>	Up to 47 characters describing sender
-----------	---------------------------------------

EXAMPLE

```
FK-C32 (smtp) # sender furukawa
FK-C32 (smtp) #
```

server

Configure email server

Syntax

server < server >

Parameter

< server> Up to 47 characters describing email server

EXAMPLE

```
FK-C32 (smtp) # server furukawa
FK-C32 (smtp) #
```

show

Show email configuration

Syntax

show

EXAMPLE

```
FK-C32 (smtp) # show
Mail Server      : furukawa
User Name       :
Password        :
Severity level   : Info
Sender          : furukawa
Return Path     : mail-address
Email Adress 1   :
Email Adress 2   :
Email Adress 3   :
Email Adress 4   :
Email Adress 5   :
Email Adress 6   : furukawa@mail.com
FK-C32 (smtp) #
```


username

Configure email user name

Syntax

username <username>/<password>

Parameter

<username> Up to 47 characters describing user name

<password> Up to 47 characters describing password

EXAMPLE

```
FK-C32 (smtp) # username fisa123 00000
FK-C32 (smtp) #
```

4.22 SNMP of CLI

Table : SNMP Commands

Command	Function
access	Configure SNMP access
community	Configure SNMP community
delete	Delete command
engine-id	Set SNMP Engine ID
getcommunity	Configure SNMP Get Community
group	Configure SNMP groups
mode	Enable/Disable SNMP mode
setcommunity	Configure SNMP Set Community
show	Show SNMP command
trap	Configure SNMP trap
user	Configure SNMP users
view	Configure SNMP views

access

Configure SNMP access

Syntax

access <WORD>/<Any/ usm/ v1/v2c>/<AuthNoPriv/ NoAuthNoPriv /AuthPriv >/<WORD>/<WORD>

Parameter

<WORD> group name: max 32 chars
<Any/ usm/ v1/v2c> Security Model
<AuthNoPriv/ NoAuthNoPriv /AuthPriv > Security Level
<WORD> read_view_name: The scope for a specified instance can read, None is reserved for Empty.
<WORD> write_view_name: The scope for a specified instance can write, None is reserved for Empty.

EXAMPLE

```
FK-C32 (snmp) # access group any noAuthNoPriv view view
FK-C32 (snmp) #
```

community

Configure SNMP community

Syntax

community <WORD>/<WORD>/<ip-address>/ <ip-mask>

Parameter

<WORD>	community: max 32 chars
<WORD>	user name: max 32 chars
<ip-address>	SNMP access source ip
<ip-mask>	SNMP access source address mask

EXAMPLE

```
FK-C32 (snmp) # community furukawa user 192.168.1.1 255.255.255.0
FK-C32 (snmp) #
```

delete

Delete command

Syntax

delete < access/ community/ group/ trap/ user/ view>/<1-14> or <1-4> or <1-10> or <1-48>

Parameter

access	Delete snmpv3 access entry
community	Delete community entry
group	Delete snmpv3 groups entry
trap	Delete trap entry
user	Delete snmpv3 users entry
view	Delete snmpv3 views entry
<1-14>	table index
<1-4>	table index
<1-10>	table index
<1-48>	table index

EXAMPLE

```
FK-C32 (snmp) # delete access 10
FK-C32 (snmp) #
```

engine-id

Configure SNMP community

Syntax

engine-id <HEX >

Parameter

<HEX> the format may not be all zeros or all 'ff'H,and is restricted to 5 - 32 octet string

EXAMPLE

```
FK-C32 (snmp) # engine-id 80001455030001c1000000
Change Engine ID will clear all original local users
FK-C32 (snmp) #
```

NOTE:

- An SNMPv3 engine is an independent SNMP agent that resides on the switch. This engine protects against message replay, delay, and redirection. The engine ID is also used in combination with user passwords to generate the security keys for authenticating and encrypting SNMPv3 packets.
- A local engine ID is automatically generated that is unique to the switch. This is referred to as the default engine ID. If the local engine ID is deleted or changed, all local SNMP users will be cleared. You will need to reconfigure all existing users.

getcommunity

Configure SNMP Get Community

Syntax

getcommunity < WORD >

Parameter

<WORD> community: max 32 chars, default : public

EXAMPLE

```
FK-C32 (snmp) # getcommunity public
FK-C32 (snmp) #
```

group

Configure SNMP groups

Syntax

group < WORD >/<Usm/ v1/v2c>/< WORD >

Parameter

<WORD>	user name: max 32 chars
<Usm/ v1/v2c>	Security Model
<WORD>	group name: max 32 chars

EXAMPLE

```
FK-C32 (snmp) # group user usm group
FK-C32 (snmp) #
```

NOTE:

- An SNMPv3 group sets the access policy for its assigned users, restricting them to specific read and write views as defined by the access entry. You can use the pre-defined default groups, or create a new group and the views authorized for that group.
- Note that the views assigned to a group must be specified with the view entry.
 - v1 : Up to 2 group names can be configured.
 - V2 : Up to 2 group names can be configured.
 - usm : Up to 10 group names can be configured.

mode

Enable/Disable SNMP mode

Syntax

Mode < disable/ enable >

Parameter

disable	Disable SNMP mode
enable	Enable SNMP mode

EXAMPLE

```
FK-C32 (snmp) # mode enable
FK-C32 (snmp) #
```

setcommunity

Configure SNMP Set Community

Syntax**setcommunity** < disable/ enable >**setcommunity** <enable >< WORD >**Parameter**

disable	Disable SNMP Set Community
enable	Enable SNMP Set Community
<WORD>	community: max 32 chars, default : private

EXAMPLE

```
FK-C32(snmp)# setcommunity enable furukawa

community : furukawa is already in community table

FK-C32 (snmp) #
```

show

Configure SNMP Set Community

Syntax**show** < access / community / group / mode / snmp / trap / user / view >**Parameter**

access	Show snmpv3 access entry
community	Show snmpv3 community entry
group	Show snmpv3 groups entry
mode	Show snmp configuration
snmp	Show snmp community configuration
trap	Show snmp trap entry
user	Show snmpv3 users entry
view	Show snmpv3 views entry

EXAMPLE

```
FK-C32 (snmp) # show mode

SNMPv3 State Show

SNMP State           : Enabled
SNMPv3 Engine ID     : 80001455030001c1000000

FK-C32 (snmp) #
```

trap

Configure SNMP trap

Syntax

trap <1-6>/<v2/v3>/<ipv4/ipv6>/<ip-address>/<1-65535>/<0-7>/<WORD>

Parameter

<1-6>	trap index : 1 - 6
<v2/v3>	version
<ipv4/ipv6>	Trap host IP type
<ip-address>	Trap host IPv4 address
<1-65535>	trap port
<0-7>	Severity level <0> Emergency: system is unusable <1> Alert: action must be taken immediately <2> Critical: critical conditions <3> Error: error conditions <4> Warning: warning conditions <5> Notice: normal but significant condition <6> Informational: informational messages <7> Debug: debug-level messages
<WORD>	community name

EXAMPLE

```
FK-C32 (snmp) # trap 6 v2 ipv4 192.168.1.1 1000 7 furukawa

FK-C32 (snmp) #
```

user

Configure SNMP users

Syntax

user <WORD>/<AuthNoPriv/AuthPriv/NoAuthNoPriv>

Parameter

<WORD> user name: max 32 chars

<AuthNoPriv/AuthPriv/NoAuthNoPriv> Security_Level

EXAMPLE

```
FK-C32 (snmp) # user user noAuthNoPriv
FK-C32 (snmp) #
```

view

Configure SNMP views

Syntax

user <WORD>/<excluded/ included >/<WORD>

Parameter

<WORD> view name: max 32 chars

<excluded/ included > view_type

<WORD> oid_subtree: The OID defining the root of the subtree.

EXAMPLE

```
FK-C32 (snmp) # view view included .1
FK-C32 (snmp) #
```

NOTE: The view oid-subtree first character must be a period (.). Wild cards can be used to mask a specific portion of the OID string using an asterisk. (Length: 1-128)

4.23 SSH of CLI

Table :SSH Commands

Command	Function
mode	Configure the SSH mode
show	Show SSH configuration

mode

Configure the SSH mode

Syntax

Mode < disable/ enable >

Parameter

disable	Disable SNMP mode
enable	Enable SNMP mode

EXAMPLE

```
FK-C32 (ssh) # mode enable
FK-C32 (ssh) #
```

show

Show SSH configuration

Syntax

show

EXAMPLE

```
FK-C32 (ssh) # show
SSH Mode : Enabled
```

4.24 SYSLOG of CLI

Table : SYSLOG Commands

Command	Function
auto-upload	Auto upload syslog
clear	Clear syslog entry
level	Configure syslog level
mode	Configure syslog mode
server	Configure syslog server IP address
show	Show syslog information
upload	Upload syslog data through tftp

auto-upload

Auto upload syslog

Syntax

auto-upload < disable/ enable >

Parameter

disable	Disable SNMP mode
enable	Enable SNMP mode

EXAMPLE

```
FK-C32 (syslog) # auto-upload enable
FK-C32 (syslog) #
```

clear

Clear syslog entry

Syntax

clear

EXAMPLE

```
FK-C32 (syslog) # clear
FK-C32 (syslog) #
```

level

Configure syslog level

Syntax

level <0-7>

Parameter

<0-7>	Syslog severity level
<0>	Emergency: system is unusable
<1>	Alert: action must be taken immediately
<2>	Critical: critical conditions
<3>	Error: error conditions
<4>	Warning: warning conditions
<5>	Notice: normal but significant condition
<6>	Informational: informational messages
<7>	Debug: debug-level messages

EXAMPLE

```
FK-C32 (syslog) # level 7
FK-C32 (syslog) #
```

mode

Configure syslog mode

Syntax

Mode < disable/ enable >

Parameter

disable	Disable SNMP mode
enable	Enable SNMP mode

EXAMPLE

```
FK-C32 (syslog) # mode enable
FK-C32 (syslog) #
```

server

Configure syslog server IP address

Syntax

server <1-2>/<ip-hostname>

Parameter

<1-2>	Syslog Server No.
<ip-hostname>	Syslog server IP address or host name

EXAMPLE

```
FK-C32(syslog)# server 1 192.168.1.1
FK-C32(syslog)#
```

show

Show syslog information

Syntax

Show <config / detail-log / log>

Parameter

config	Show syslog configuration
detail-log	Show detailed syslog information
log	Show syslog entry.

EXAMPLE

```
FK-C32(syslog)# show detail-log 1
ID      : 1
Level   : Info
Time    : 2011-01-01 04:06:10
Message:

Fan Normal [FAN 3 : 2946 RPM]
FK-C32(syslog)# show log
TFTP Server: 0.0.0.0
Auto Upload: Enable
<0> Emergency: 0
<1> Alert      : 0
<2> Critical   : 0
<3> Error      : 0
<4> Warning    : 0
<5> Notice     : 0
<6> Info       : 2
<7> Debug      : 0
      All      : 2

ID  Level   Time                Message
---
1   Info     2011-01-01 04:06:10 Fan Normal [FAN 3 : 2946 RPM]
2   Info     2011-01-01 04:06:05 Fan Abnormal [FAN 3 : 1960 RPM]
FK-C32(syslog)#
```

upload

Upload syslog data through tftp

Syntax**Upload****EXAMPLE**

```
FK-C32(syslog)# upload
FK-C32(syslog)#
```

4.25 SYSTEM of CLI

Table : SYSTEM Commands

Command	Function
contact	Configure system contact
cpuload	Enter into CPU Load
location	Configure system location
name	Configure device name
show	Show system information

contact

Configure system contact

Syntax

contact <LINE>

Parameter

<LINE> Up to 255 characters describing system contact information.

EXAMPLE

```
FK-C32(system)# contact David
FK-C32(system)#
```

location

Configure system location

Syntax

location <LINE>

Parameter

<LINE> Up to 255 characters describing system location.

EXAMPLE

```
FK-C32(system)# location Curitiba
FK-C32(system)#
```

name

Configure device name

Syntax

name < WORD >

Parameter

<WORD> Up to 255 characters describing device name.

EXAMPLE

```
FK-C32 (system) # name FK-C32
FK-C32 (system) #
```

show

Show system information

Syntax

show

EXAMPLE

```
FK-C32(system)# show

Model Name           : FK-C32
System Description    : Furukawa Managed GEAPON OLT
Location             : Curitiba
Contact              : David
RID-CID              : 0-0
Device Name          : FK-C32
System Uptime        : 04:23:54
Current Time         : 2011-01-01 04:23:54
BIOS Version         : v1.00
Firmware Version     : v1.22
CPU Hardware-Mechanical Version : v1.00-v1.00
CPU Code Number      : TIM0123456789
Chassis HW-Mech Version : v1.01 - v1.01
Host IP Address      : 192.168.1.99
Subnet Mask          : 255.255.255.0
Gateway IP Address   : 192.168.1.253
Host MAC Address     : 00-01-c1-00-00-00
Console Baudrate     : 115200
RAM Size             : 64
Flash Size           : 16
CPU Load (100ms, 1s, 10s) : 0%, 27%, 24%
Bridge FDB Size      : 8192 MAC addresses
Transmit Queue       : 8 queues per port
Maximum Frame Size   : 9600
Fan Speed            : 3131 / 3067 / 3006
Voltage              : 12.1 V
Temperature          : 26 / 78.8F

FK-C32(system)#
```


cpuload***Enter into CPU Load*****Syntax*****cpuload*****EXAMPLE**

```
FK-C32(system)# cpuload
FK-C32(cpuload)#
```

Table :SYSTEM-CPULOAD Commands

Command	Function
cpuperiod	Configure CPU load period
cpurate	Configure CPU sample rate
cputhreshold	Configure CPU threshold
show	Show CPU load information

cpuperiod

Configure CPU load period

Syntax***cpuperiod* <0-1440>****Parameter****<0-1440>** unit: minute, 60 represent 1 hour,0:disable**EXAMPLE**

```
FK-C32(cpuload)# cpuperiod 3
FK-C32(cpuload)#
```

cpurate

Configure CPU sample rate

Syntax

cpurate <1-60>

Parameter

<1-60> unit: seconds

EXAMPLE

```
FK-C32 (cpuload) # cpurate 10
FK-C32 (cpuload) #
```

cputhreshold

Configure CPU threshold

Syntax

cputhreshold <1-100>

Parameter

<1-100> CPU threshold

EXAMPLE

```
FK-C32 (cpuload) # cputhreshold 15
FK-C32 (cpuload) #
```

show

Show CPU load information

Syntax

show

EXAMPLE

```
FK-C32 (cpuload) # show
CPU Load Period      : 10 minutes (0~1440)
CPU Sample Rate      : 5 seconds (1~60)
CPU Average Load     : 36%
CPU Load Threshold   : 50 % (1~100)
```

4.26 TIME of CLI

Table : TIME Commands

Command	Function
clock-source	Configure the clock source
daylight	Indicates the Daylight Savings operation
delete	Delete NTP server
manual	Configure system time manually
ntp	Configure NTP server
show	Show time information
time-zone	Configure system time zone

clock-source

Configure the clock source

Syntax

clock-source < local/ntp>

Parameter

local Local settings
ntp Use NTP to synchronize system clock

EXAMPLE

```
FK-C32 (time) # clock-source local
FK-C32 (time) #
```

daylight

Indicates the Daylight Savings operation

Syntax

daylight <disable >
daylight < enable >/<1-1440>/< By-dates>/<YYYY:MM:DD>/<HH:MM>/<YYYY:MM:DD>/<HH:MM>
daylight < enable >/<1-1440>/< By-dates/Recurring >/<DAY>/<WORD>/<MONTH>/<HH:MM>
/<DAY>/<WORD>/<MONTH>/<HH:MM>

Parameter

disable	Disable Daylight Savings operation
enable	Enable Daylight Savings operation
<1-1440>	Minute. Time Set Offset.
By-dates	Manually enter day and time that DST starts and ends
Recurring	DST occurs on the same date every year
<DAY>	Sun, Mon, Tue, Wed, Thu, Fri, Sat
<WORD>	first, 2, 3, 4, last
<MONTH>	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec
<HH:MM>	The time at which DST ends every year
<YYYY:MM:DD>	Day that DST ends
<HH:MM>	Time that DST starts

EXAMPLE

```
FK-C32 (time) # daylight enable 1000 recurring sun first jan 10:00 sat 2 jan 10:00
FK-C32 (time) #

FK-C32 (time) # daylight enable 1000 by-dates 2013:07:01 10:00 2013:07:31 10:00
FK-C32 (time) #
```

delete

Delete NTP server

Syntax

delete <1-5>

Parameter

<1-5> NTP server index

EXAMPLE

```
FK-C32 (time) # delete 1
FK-C32 (time) #
```

manual

Configure system time manually

Syntax

manual <YYYY:MM:DD>/<HH:MM:SS>

Parameter

<YYYY:MM:DD> Date of system, example: 2011:06:25

<HH:MM:SS> Time, example: 23:10:55

EXAMPLE

```
FK-C32 (time) # manual 2013:07:01 12:00:00
FK-C32 (time) #
```

ntp

Configure NTP server

Syntax

ntp <1-5>/<ipv6-address> or <ip-hostname>

Parameter

<1-5> NTP server index

<ipv6-address> NTP server IPv6 address

IPv6 address is in 128-bit records represented as eight fields of up to four hexadecimal digits with a colon separates each field (:).

For example, 'fe80::215:c5ff:fe03:4dc7'. The symbol '::' is a special syntax that can be used as a shorthand way of representing multiple 16-bit groups of contiguous zeros; but it can only appear once. It also used a following legally IPv4 address. For example, '::192.1.2.34'

<ip-hostname> NTP server IP address or hostname

EXAMPLE

```
FK-C32 (time) # ntp 1 8.8.8.8
FK-C32 (time) #
```

show

Show time information

Syntax

show <daylight / ntp>

Parameter

daylight	Show time information
ntp	Show NTP information

EXAMPLE

```
FK-C32(time)# show daylight
Clock Source      : Local Settings
Local Time        : 2011-01-07 17:27:52 (YYYY-MM-DD HH:MM:SS)
Time Zone Offset  : 0 (min)
Daylight Savings  : Enabled
Time Set Offset   : 1000 (min)
Daylight Savings Type : By dates
From              : 2013-07-01 10:00 (YYYY-MM-DD HH:MM)
To                : 2013-07-31 10:00 (YYYY-MM-DD HH:MM)
FK-C32(time)#
```

time-zone

Configure system time zone

Syntax

time-zone <HH:MM >

Parameter

<HH:MM> The time difference between GMT and local time, the possible value is from GMT-12:00 to GMT+12:00

EXAMPLE

```
FK-C32(time)# time-zone 04:00
FK-C32(time)#
```

4.27 TFTP of CLI

Table : TFTP Commands

Command	Function
show	Show tftp information
tftp-server	Set tftp server

show

Show tftp information

Syntax

show

EXAMPLE

```
FK-C32(tftp)# show
TFTP Server: 10.150.3.84
```

tftp-server

Set tftp server

Syntax

tftp-server <ip-hostname>

Parameter

<ip-hostname> Tftp server IP address

EXAMPLE

```
FK-C32(tftp)# tftp server 10.150.3.84
```

Appendix A

Technical Specification

Model Description

- 16-slot managed EPON converter chassis for modular EPON Media converter with redundant AC Power or redundant -48VDC Power

Part number	Model	Power Supply Configurations	Slots
35510099	FK-C32-RAC	Two AC 100/240V Power Module w/ Redundancy	16
35510100	FK-C32-RDC	Two DC -48V Power Module w/ Redundancy	16

Power Model	Power Supply Configurations	DC Output
RPM-300A	Redundant AC 100~240V	300W @+12V
RPM-300D	Redundant DC -48V	300W @+12V

OLT Module	Description
FK-OLT-20	1-Port Gigabit Ethernet to 1-Port 1.25G EPON OLT Module, CO SC 20Km, 1490nm
FK-OLT-20/2	2-Port GbE TP/SFP Combo to 2-Port 1.25G or 2.5G SFP EPON Module

Note:

- The OLT modules are ordered by model number and with a separate package
- The slide-in modules and converter chassis should be supplied only by the same manufacturer/vender. Both converter and chassis rack are built to match each other at dimensions, power bus/receptacle and power safety, etc.
- FK-OLT-20/2 is using SFP cage on this module. The available transceiver is the GEAPON Optical Transceiver 1.25GBPS 20KM part number 35510069.

Capacity : 16 Slots for modular Media converter

Management : SNMP and web-base via in-band LAN port or local serial CLI

Power supply : Hot-swap redundant, high reliability/safety

Redundant Power Requirement:

AC Power Input:		Telecom DC Input:	
Voltage:	100/240VAC	Voltage:	–48VDC
Frequency:	50~60Hz	NA	NA
Dissipation:	300W maximum	Dissipation:	300W Maximum

Ambient Temperature	:	0° to 40°C
Humidity	:	5% to 90%
Dimensions	:	132(H) × 440(W) × 336.5(L) mm
Weight	:	8.52kg (without power)
	:	9.54 kg (includes 1 x AC power)
	:	10.56 kg (includes 2 x AC power)
	:	9.57 kg (includes 1 x DC power)
	:	10.62 kg (includes 2 x DC power)
	:	10.59 kg (includes 1 x AC power

+1 DC power)

Complies with FCC Part 15 Class A & CE Mark Approval.

Management Features:

- Provides SNMP and Web management for the unit power status, module type and port link status of each media converter module
- Management from anywhere and any platform using a web browser
- Easy-to-use point and click user interface
- Photographic quality interface to configure and monitor the device
- In-band and out-of-band remote telnet management
- Local CLI management via RS232 port
- TFTP Software Upgrade

The management Unit:

The functions of management related to components/devices are as follows:

- **LAN Port** The LAN port for in-band management
- **Console Port** The console port for out-of-band management
- **Management LED** The management module is working

The managed Media converter module/device can be managed by:

- Direct CLI connection over an RS232 cable
- Web browser software from Internet or Intranet over TCP/IP network
- Telnet software over TCP/IP network
- SNMP management over TCP/IP network

The managed Media converter module/device can be managed/monitored by the following objects:

- The management configurations
- How many converter modules are installed in the converter chassis
- The type of each converter module
- The slot position where each converter module is installed
- The UTP Port Link and Receive status of each converter module
- The Fiber Port Link and Receive status of each converter module
- The operation status of redundant power modules

Appendix B

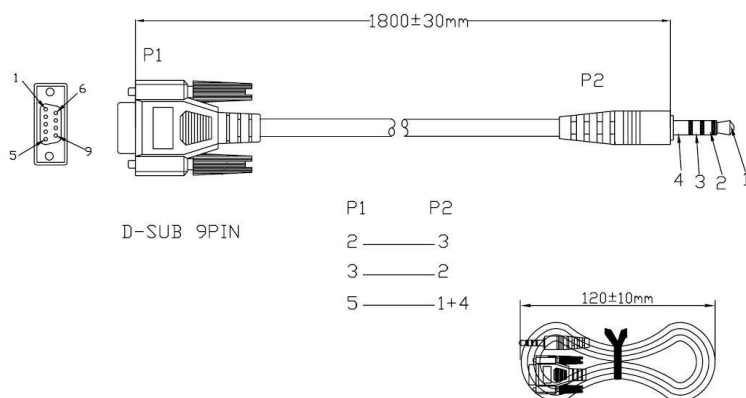
RS-232 Serial Cable Specification

The DB-9 to Ear-Phone jack cable is used for connecting a terminal or terminal emulator to the Media Converter Chassis Management Module to access the command-line interface.

The table below shows the pin assignments for the RS-232 cable.

Function	Mnemonic	Pin
Carrier	CD	1
Receive Data	RXD	2
Transmit Data	TXD	3
Data Terminal Ready	DTR	4
Signal Ground	GND	5
Data Set Ready	DSR	6
Request To Send	RTS	7
Clear To Send	CTS	8

DB9 Pin to Ear-Phone Jack RS-232 Serial Cable Specification



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